

University of San Diego

Digital USD

Doctor of Nursing Practice Final Manuscripts

Theses and Dissertations

Spring 5-23-2020

Recommended Syphilis and HIV Testing After Positive STI Testing

Katherine Cayce Monaghan RN, BSN
University of San Diego, kmonaghan@sandiego.edu

Follow this and additional works at: <https://digital.sandiego.edu/dnp>



Part of the [Community Health and Preventive Medicine Commons](#), [Nursing Commons](#), [Public Health Education and Promotion Commons](#), and the [Women's Health Commons](#)

Digital USD Citation

Monaghan RN, BSN, Katherine Cayce, "Recommended Syphilis and HIV Testing After Positive STI Testing" (2020). *Doctor of Nursing Practice Final Manuscripts*. 131.
<https://digital.sandiego.edu/dnp/131>

This Doctor of Nursing Practice Final Manuscript is brought to you for free and open access by the Theses and Dissertations at Digital USD. It has been accepted for inclusion in Doctor of Nursing Practice Final Manuscripts by an authorized administrator of Digital USD. For more information, please contact digital@sandiego.edu.

UNIVERSITY OF SAN DIEGO

Hahn School of Nursing and Health Science

DOCTOR OF NURSING PRACTICE

Recommended Syphilis and HIV Testing After Positive STI Testing

by

Katherine Cayce Monaghan

A Doctor of Nursing Practice Portfolio presented to the

FACULTY OF THE HAHN SCHOOL OF NURSING AND HEALTH SCIENCE

UNIVERSITY OF SAN DIEGO

In partial fulfillment of the

requirements for the degree

DOCTOR OF NURSING PRACTICE

April 24, 2020

Joseph Burkard, DNSc, CRNA, Faculty Advisor

Kimberly Woodward, MD, MPH, Clinical Mentor

Table of Contents

List of Tables	iv
List of Figures.....	v
Acknowledgments	vi
Opening Statement Purpose in Pursuing the DNP	1
Documentation of Mastery of DNP Program Outcomes.....	2
Final Manuscript.....	3
Abstract.....	4
Background and Evidence for the Problem.....	5
Description of Project, Facilitators, and Barriers	6
Evidence Based Practice Model	6
Proposed Evidence Based Solutions	7
Project Development and Implementation Timeline.....	9
Data Analysis.....	10
Project Outcomes.....	11
Project Dissemination.....	13
Cost Benefit Analysis	13
Implications of Clinical Practice (Sustainability).....	14
Conclusion	14
References	16
Concluding Essay: Reflections on Growth in Advanced Practice Nursing Role	18
Appendix A IRB Approval.....	19
Appendix B Letter of Support from Clinical Site	20
Appendix C Poster Abstract with Letter of Acceptance to Conference	21
Appendix D Poster Presentation.....	24
Appendix E DNP Program Outcomes Exemplars.....	25
Appendix F Provider Education	43

Appendix G CITI Training Certificates53

List of Tables

Table 1: Demographics of Positive STI Results..... 12

List of Figures

Figure 1: Frequency and Percentage of Positive STI Tests.....	11
Figure 2: Recommendations and Compliance.....	12

Documentation of Mastery of DNP Program Outcomes

Final Manuscript

Recommended Syphilis and HIV Testing After Positive STI Testing

Katherine Cayce Monaghan, BSN, RN, DNP Student

Joseph Burkard, DNSc, CRNA

Kimberly Woodward, MD, MPH

University of San Diego

Abstract

Background: Historically primary and secondary syphilis were seen primarily among men who have sex with men and rates among women remained low and rarely increased. Recent research shows that between 2013–2017, the primary and secondary syphilis rate increased 72.7% in the U.S. and 155.6% among women. Patients diagnosed with syphilis have a two to five fold increased risk of acquiring human immunodeficiency virus (HIV). Additionally, positive testing for other sexual transmitted infections (STI) might be indicators of high risk sexual behaviors and exposures that place a person at greater risk for acquiring syphilis and HIV. A southern California university student health center is treating and providing primary care to young adult college students, many of whom seek STI screening and testing. Clinic management has implemented screening tools within the electronic health record (EHR) and provider education on HIV and syphilis screening recommendations as an evidence-based practice intervention to improve provider compliance in recommending syphilis and HIV screening after positive STI testing to young adult college students.

Purpose: The aim of this evidence-based project is to increase recommendations for syphilis and HIV screening following positive STI testing in young adult college students through provider education and implementation of screening tools within the EHR.

Methodology: The Iowa Model guided this project. Deidentified baseline data will be retrieved from the University of San Diego Student Health Center EHR system. Data points will include the number of positive STI tests for chlamydia, gonorrhea, syphilis, and HIV for the 2018-2019 academic year (September 2018-August 2019). Further data points will include the number of syphilis and HIV testing recommendations that followed positive STI testing. In October 2019, provider education was provided on recommendations for syphilis and HIV testing following positive STI testing. Outcome data will be obtained 3 months after provider education is completed. After 3 months, pre/post intervention data will be analyzed to evaluate effectiveness of provider education.

Evaluation Results: After provider education and implementation of EHR template, 97% of students were recommended HIV testing and 94% were recommended syphilis testing following positive STI results. Compliance with the EHR template was 29% leaving room for compliance improvement in EHR charting continuity among providers.

Implications for Clinical Practice: The implementation of screening tools within the EHR and provider education on syphilis and HIV screening recommendations will improve the early detection of syphilis and HIV and allow for prompt treatment to reduce long term health effects associated with syphilis and HIV. In addition, it will allow providers to educate patients on safe sexual health behaviors to prevent exposure to syphilis and HIV.

Conclusions: Initiating evidenced-based screening recommendations for syphilis and HIV after positive STI testing will help decrease complications and comorbidities associated with exposure to syphilis and HIV in the young adult college student population.

Recommended Syphilis and HIV Testing After Positive STI Testing

Background and Evidence for the Problem

According to a recent study from Kidd, Grey, Torrone, & Weinstock (2019), between 2013–2017, the primary and secondary syphilis rate increased 72.7% in the U.S. and 155.6% among women. During the same reporting period, women and heterosexual men reported a substantial increase in methamphetamine, injection drug, and heroin use. Historically, increases in primary and secondary syphilis were seen primarily among men who have sex with men (MSM) and rates among women remained low and relatively stable. The west region (Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming) had the greatest increase in primary and secondary syphilis rates. The study concluded that heterosexual syphilis transmission and drug use, especially methamphetamine use, are intersecting epidemics in the nation today (Kidd, Grey, Torrone, & Weinstock, 2019).

In 2017, San Diego County reported 581 cases of primary or secondary syphilis and 546 cases in 2018. Approximately 16.4 cases per 100,000 people, and a six percent decrease from the previous year. In 2018, 73.8% of primary and secondary syphilis cases involved men who have sex with men (MSM) (San Diego County Health and Human Services Agency, 2019a). Demographics for positive syphilis results include males between the ages of 25-34. Syphilis infections were the highest amongst African-American/black males (San Diego County Health and Human Services Agency, 2019a). In addition, 39% of primary and secondary syphilis cases of MSM were also co-infected with human immunodeficiency virus (HIV) (Epidemiology and Immunization Services Branch County of San Diego Health and Human Services Agency, 2017).

HIV rates within San Diego County continue to decline. Between 2013-2017, approximately 2,392 people were diagnosed with HIV (San Diego County Health and Human Services Agency, 2019b). Of those, 91% were male and 9% were females. The highest rate of diagnosis was among Non-Hispanic Black/African American men. Sixty nine percent of individuals newly diagnosed reported MSM transmission risk and 64% were 20-39 years old at the time of diagnosis (Epidemiology and Immunization Services Branch County of San Diego Health and Human Services Agency, 2017).

Description of EBP Project, Facilitators, and Barriers

A southern California university student health center is treating and providing primary care to young adult college students, many of whom seek sexual transmitted infections (STI) screening and testing. Clinic management has conducted a retrospective data collection and determined an area of improvement. The clinics management has implemented screening tools within the electronic health record (EHR). The The project was proposed to the Doctor of Nursing Practice (DNP) student while completing a clinical rotation at the student health center in October 2019. The aim of this evidence-based project is to increase recommendations for syphilis and HIV screening following positive STI testing in young adult college students through provider education and implementation of screening tools within the EHR.

Facilitators of the project include clinical mentor Dr. Kimberly Woodruff, clinic manager Pamela Sikes, the DNP student, and providers at the student health center. Barriers include a shortened project timeline, leading to an inability to reassess provider education and trend recommendation and potential for a low sample size.

Evidence Based Practice Model

The Iowa Model of Evidence-Based Practice to Promote Quality Care was originally developed in early 1990's by a group of nurses from the University of Iowa Hospitals and Clinics (Iowa Model Collaborative et al., 2017). Today, the Iowa Model is a method to guide nurses through the process of identifying health-related issues and applying evidence-based solutions to implement practice change (Melnyk & Fineout-Overholt, 2015). The Iowa Model is selected for the project because it provides a systematic approach to implementing practice change that is easy to navigate and track progress (Melnyk & Fineout-Overholt, 2015).

The Iowa Model is compatible with organizations, regardless of size. The University of San Diego Student Health Center is able to apply the evidence and guidance from CDC to their standards of patient care. The Iowa Model is a good fit for the project because it encourages collaboration and a multidisciplinary approach to implementing practice change (Iowa Model Collaborative et al., 2017). The project will focus on a collaboration of student self-care, professional recommendations, and community resources.

Melnyk and Fineout-Overholt (2015) discuss the last step of the Iowa Model, integrate and maintain change practice. This step highlights the importance of disseminating the project results to local stakeholders as well as a more global dissemination through publication and professional conferences (Melnyk & Fineout-Overholt, 2015). The project will focus on STI recommendation for university students but echoes the national efforts of the CDC and the global efforts from the WHO towards reducing the number of STI's and their long term health effects.

Proposed Evidence Based Solutions

A literature review was conducted using electronic database resources PubMed, CINAHL, and the University of San Diego online library catalog. Keywords included HIV screening, syphilis screening, positive STI results, and STI screening. Publications were limited to English text only and published between 2010-2020. With a high yield in results, publications were limited to those published between 2015-2020. The modified search yielded 287 articles, 24 of the articles were reviewed, and four articles were included to support the evidenced-based interventions. The Centers for Disease Control and Prevention (CDC) and the U.S. Prevention Services Task Force (USPSTF) websites were utilized for evidence-based recommendations.

The CDC (2015), recommends syphilis testing for all pregnant women at the first prenatal visit. Retesting should be performed on high risk women early in the third trimester and at delivery. All sexually active gay, MSM, and bisexual men should be tested once a year for syphilis. Individuals who have multiple or anonymous partners should be tested every three to six months. Individuals with HIV should be tested at the time of initial diagnosis and at least annually afterwards. Any individual identified as having high risk behaviors should be screened more frequently (Centers for Disease Control and Prevention, 2015).

The CDC recommends that all adolescents and adults ages 13-64 years old should be screened at least once for HIV (Centers for Disease Control and Prevention, 2019a). All men and women who seek evaluation and treatment for STI's should be screened for HIV. HIV screening is also recommended annually for sexually active MSM, if their current HIV status is unknown or negative. In addition, MSM who have had multiple

sexual partners or have partners with multiple sexual partners should be recommended more frequent screening (Centers for Disease Control and Prevention, 2019a).

High risk behaviors of HIV transmission include intravenous drug use, sharing of needles by patient or partner, unprotected sexual contact, and multiple and/or anonymous sexual partners. According to the CDC, anal sex is the highest-risk sexual behavior for HIV transmission. The receptive partner, or “bottom” partner, is thirteen times more likely to get infected with HIV compared to insertion partner, or “top” partner. Vaginal sex has lower risks of HIV transmission. Oral sex, touching, and kissing carry little to no risk for transmitting HIV (Centers for Disease Control and Prevention, 2019b).

According to the U.S. Prevention Services Task Force (2019), all adolescents and adults aged 15 years to 65 years of age should be screened for HIV. The USPSTF gives this recommendation a grade “A” rating, implying a high certainty that the net benefit of HIV screening is substantial. The task force also recommends that personal risk factors should be considered to screen for HIV regardless of age (U.S. Preventative Services Task Force, 2019). In addition, the USPSTF has assigned a grade “A” recommendation for syphilis screening of adults and adolescents that are asymptomatic, nonpregnant, and have increased risk factors for syphilis infection (U.S. Preventative Services Task Force, 2016).

Project Development and Implementation Timelines

In January 2019 a retrospective data collection was performed by Dr. Woodruff and Mrs. Sikes, from May 2017 to May 2018, to assess current provider recommendations following positive STI testing. During this time, 549 chlamydia and gonorrhea tests were performed and 44 positive results occurred. Additional data was

collected from September 2018 through December 2019, specifically reviewing HIV and syphilis testing following positive STI tests. Only 68% of positive STI results received appropriate HIV and syphilis testing recommendations. In January 2019, an evidence based quality improvement study initiated to increase provider recommendations for HIV and syphilis testing following positive STI testing. In addition to the project development, Dr. Woodruff and Mrs. Sikes developed and implemented a “STI Positive Results” EHR template with current recommendations for providers following positive STI testing. Benchmark was set to increase the number of cases with appropriate HIV and syphilis testing recommendations to greater than or equal to 90%.

October 2019, the DNP student was invited to join the project and provider and staff education is provided by the DNP Student. In December 2019, new low cost and rapid HIV and syphilis testing becomes available at Student Health Center. USD IRB approval was obtained in January 2020. Post intervention data collection was performed in February 2020 for analysis and review with clinic staff and DNP student.

Data Analysis

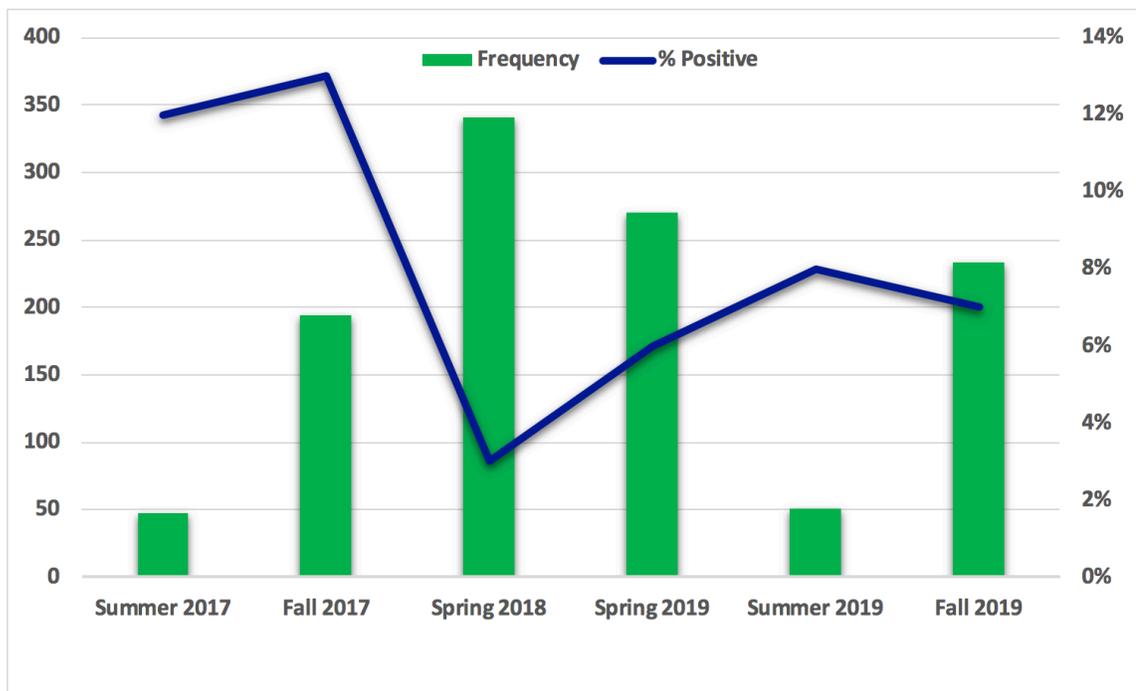
Data points will include the number of positive STI tests for chlamydia, gonorrhea for the 2018-2019 academic year (September 2018-August 2019). Further data points will include the number of syphilis and HIV testing recommendations that followed positive STI testing between January 2019-December 2019. Demographic data was collected including age, gender, ethnicity, and race of the patients. In October 2019, provider education was provided on recommendations for syphilis and HIV testing following positive STI testing. Outcome data will be obtained 3 months after provider education is

completed. After 3 months, pre/post intervention data will be analyzed to evaluate effectiveness of provider education.

Project Outcomes

The retrospective analysis of data was collected 3 months after provider education was performed. Figure 1 displays the frequency and percentage of positive STI results. A relative low percentage of patients tested have positive STI results. The percentage of positive results is elevated in the summer months but the lowest number of tests are performed.

Figure 1
Frequency and Percentage of Positive STI Tests

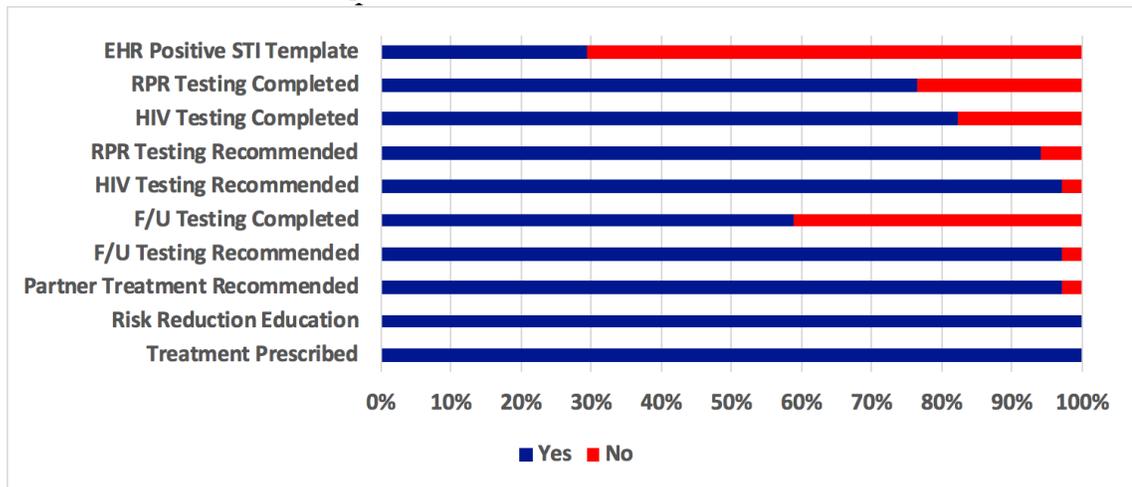


Data elements collected are displayed in Figure 2. Benchmarks were met as 97% of patients received HIV testing recommendations and 94% of patients received syphilis testing recommendations following positive STI results. The number of providers using the EHR STI Positive Results template was 29%. Provider education was performed in October 2019. There was an 80% increase in the EHR template between October 2019-

December 2019. The provider education was successful in increasing use of the STI Positive Results template. Furthermore, between October 2019 and December 2019 100% of patients with positive STI results received all appropriate recommendations.

Although HIV and syphilis testing was recommended greater than 90% of the patients, only 82% of patients completed HIV testing and 76% of patients completed syphilis testing. This decrease in completion of testing can be contributed to the cost of additional testing, patients preference to pursue free local testing options, and denial of high risk behaviors from patients.

Figure 2
Recommendations and Compliance



Demographics of positive STI results are displaced in Table 1. Sixty two percent of positive STI results were males and 38% were females. Non-resident alien refers to international students, further ethnic and race information was not available. This data element was discussed with the stakeholders for future investigation.

Table 1

Demographics	Chlamydia	Gonorrhea	Total
<i>Female</i>	<i>12</i>	<i>1</i>	<i>13</i>
Hispanic	3		3
Multi-racial	1		1
Non-resident Alien	2		2

White	6	1	7
<i>Male</i>	<i>20</i>	<i>1</i>	<i>21</i>
Asian	1		1
Black or African American	1		1
Hispanic	5		5
Multi-racial	1	1	2
Non-resident Alien	4		4
White	8		8
<i>Grand Total</i>	<i>32</i>	<i>2</i>	<i>34</i>

Demographics of Positive STI Results

Project Dissemination

In January 2020, a poster abstract was submitted and accepted for presentation at the Western Institute of Nursing Annual National Conference to be held in Portland, OR in April 2020. Unfortunately, the conference was cancelled in March 2020 following the COVID-19 pandemic. Project results were informally discussed with stakeholders during data collection in February 2020. An online poster presentation was performed for the DNP Presentation Day at the University of San Diego (USD) in March 2020. Due to USD campus closure in March 2020 and unexpected changes to stakeholder schedules, a formal stakeholders presentation is tentatively scheduled for late April 2020 to present completed data results to Mrs. Sikes and clinical mentor Dr. Woodruff via online video conference.

Cost-Benefit Analysis

All USD students are required to have a form of health insurance. USD Student Health Insurance Plan, otherwise known as “SHIP”, costs \$3,032 annually with no additional costs for STI testing at the student health center and with in-network providers. Students may waive this fee if proof of private health insurance is provided. All international students are required to purchase health insurance through USD. For

students not enrolled in SHIP, student health fees for all STI testing are less than \$100 at the health center (University of San Diego, 2020). Payment plans and charitable donations are available for students who cannot pay for services on an individual basis. Students did not incur additional costs

Development and implementation of the positive STI EHR tool was provided by the existing staff. Provider education was performed during a scheduled monthly staff meeting using electronic resources, no handouts were utilized. No additional personnel were hired to support this project and no additional costs occurred. Additional resources are provided to students to seek low cost, or zero cost, STI testing and treatment options with the local area. The benefits of early STI treatment and prevention of chronic illness far exceeds an incurred testing costs.

Implications in Clinical Practice (Sustainability)

The project has significant sustainability at the clinic. With the implementation of screening tools already within the EHR, staff can continue to routinely pull data to trend compliance. It would benefit the staff to determine a set schedule for the data to be analyzed and feedback given to providers on recommendation compliance. In addition, the simple implementation of provider education on current STI screening recommendations will allow providers to educate patients on safe sexual health behaviors to prevent exposure to syphilis and HIV. Provider and clinical staff buy-in was a facilitating factor contributing to success of this project.

Conclusion

Sex is part of our health and well-being and it is essential that providers are open to discussing sexual health with patients. Results of this evidence-based practice project

showed 100% of patients received appropriate treatment for STI and risk reduction education. In addition, the benchmark was met and greater than 90% of patients received appropriate HIV and syphilis testing recommendations post positive STI testing.

Limitations of this study include a small sample size and a short duration of time to measure the impact of the interventions. Although compliance with the EHR template improved post provider education, the standardized use of the EHR template among providers can streamline future data collection and ensure appropriate recommendations are offered.

References

- Centers for Disease Control and Prevention. (2015). 2015 sexually transmitted disease treatment guidelines: screening recommendations and considerations referenced in treatment guidelines and original sources. Retrieved Sept 23, 2019, from <https://www.cdc.gov/std/tg2015/screening-recommendations.htm>
- Centers for Disease Control and Prevention. (2019a). HIV testing. Retrieved Oct, 10, 2019, from <https://www.cdc.gov/hiv/testing/index.html>
- Centers for Disease Control and Prevention. (2019b). HIV risk and prevention. Retrieved Oct, 10, 2019, from <https://www.cdc.gov/hiv/risk/index.html>
- Epidemiology and Immunization Services Branch County of San Diego Health and Human Services Agency. (2017). HIV disease by race/ethnicity in san diego county. Retrieved Oct 10, 2019, from https://www.sandiegocounty.gov/content/dam/sdc/hhsa/programs/phs/documents/RaceEthnicityThrough_12312017v04-11-19.pdf
- Iowa Model Collaborative, Buckwalter, K. C., Cullen, L., Hanrahan, K., Kleiber, C., McCarthy, A. M., ... & Authored on behalf of the Iowa Model Collaborative. (2017). Iowa model of evidence-based practice: revisions and validation. *Worldviews on Evidence-Based Nursing*, 14(3), 175-182. doi: 10.1111/wvn.12223
- Kidd SE, Grey JA, Torrone EA, Weinstock HS. Increased Methamphetamine, Injection Drug, and Heroin Use Among Women and Heterosexual Men with Primary and Secondary Syphilis — United States, 2013–2017. *MMWR Morb Mortal Wkly Rep* 2019;68:144–148. DOI: <http://dx.doi.org/10.15585/mmwr.mm6806a4>

Melnyk, B.M. & Fineout-Overholt, E. (2015). Evidence-based practice in nursing and healthcare: A guide to best practice. (3rd ed). Philadelphia, PA: Wolters Kluwer.

San Diego County Health and Human Services Agency. (2019a). STD case reporting information. Retrieved Oct 10, 2019, from https://www.sandiegocounty.gov/content/sdc/hhsa/programs/phs/hiv_std_hepatitis_branch/disease_reporting_information.html

San Diego County Health and Human Services Agency. (2019b). HIV counseling and testing. Retrieved Oct 10, 2019, from https://www.sandiegocounty.gov/content/sdc/hhsa/programs/phs/hiv_std_hepatitis_branch/hiv_counseling_and_testing_services.html

University of San Diego. (2020). Student health insurance plan benefits and features. Retrieved Feb 4, 2020 from <https://www.sandiego.edu/health-insurance/benefits.php#accordion-panell1>

U.S. Preventative Services Task Force. (2019). Human immunodeficiency Virus (HIV) infection: screening. Retrieved Jan 23, 2020, from <https://uspreventiveservicestaskforce.org/uspstf/recommendation/human-immunodeficiency-virus-hiv-infection-screening>

U.S. Preventative Services Task Force. (2016). Syphilis infection in nonpregnant adults and adolescents: screening. Retrieved Jan 23, 2020, from <https://uspreventiveservicestaskforce.org/uspstf/recommendation/syphilis-infection-in-nonpregnant-adults-and-adolescents>