Awareness of and Attitudes Toward HIV Self-Testing by People Aged 18-22 Years Old Living in Bangkok

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Abstract

The aim of this project was to assist this project's sponsor, the Institute of HIV Research and Innovation, in addressing the lack of awareness of HIV self-testing (HIVST) in Bangkok among people aged 18-22 years old. A survey, whose questions were influenced by interviews with HIV experts and a focus group of 5 Chulalongkorn University (CU) students from different disciplines was conducted to measure HIVST awareness, perceived risk of HIV, and general HIV knowledge across different age groups and educational institutions. The majority of respondents were CU students. Table-sitting and Instagram posting, especially by influencers, were effective methods to spread awareness. 72% to 85% of participants answered questions regarding HIV knowledge correctly, but only 33% of people knew about HIVST. Average perceived risk was also only 1.6 out of 10. The project team recommends having an influencer post about HIVST to raise surface level awareness, conducting table-sittings to change the target population's perceived risk of HIV, not spending time or resources on general HIV knowledge, and closely examining the subset of the target population that is aware of HIVST and has a high perceived risk of HIV.

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Executive Summary

Background

The Human Immunodeficiency Virus (HIV) is a virus that targets the immune system, weakening the body and increasing the risk of infections that the body cannot effectively "fight off" (NHS, 2017). With treatment, the virus's progression can be halted, and even controlled to the point where the virus is undetectable, rendering the virus untransmittable. In 2021, the Joint United Nations Programme on HIV/AIDS estimated that there are over 520,000 people living with HIV in Thailand. The HIV epidemic in Thailand is a serious public health concern that requires interventions to reduce transmission. The first step to receiving treatment and preventing the spread of the virus is being aware of one's HIV status.

Fortunately, in April 2019, the Thai FDA approved the sale of HIV self-testing (HIVST) kits in pharmacies (Shafik et.al, 2021). Self-testing has been shown to be one of the most cost-effective ways to encourage people to get tested and to increase the rate of HIV diagnosis (Shafik et.al, 2021). However, due to a lack of data on this population, it is unclear if people aged 18-22 years old living in Bangkok are aware of HIV self-testing.

Project Overview

The goal of this project was to collect data to inform future educational programs for the IHRI to increase awareness and acceptance of HIV Self-Testing of people 18-22 living in Bangkok. A convenience sample whose respondents consisted mostly of Chulalongkorn University students was used as a place to begin the project's investigation of perceptions of HIV

And HIVST among people aged 18-22 years old living in Bangkok. To accomplish this project's goal, the team identified the following three objectives:

1. Gain a greater understanding of attitudes and awareness of HIV and HIVST of people aged 18-22 years old living in Bangkok.
2. Determine attitudes and awareness of HIV and HIV self-testing (HIVST) in people aged 18-22 years old living in Bangkok.
3. Pilot educational methods and materials for people aged 18-22 living in Bangkok.

Methods

A variety of research methods were used to accomplish the project's objectives. To complete the first objective, the team conducted interviews with IHRI staff and ran a focus group with five Chulalongkorn students. Between the extensive experience of the IHRI experts and the contextual knowledge of the CU students, the team gained knowledge of attitudes toward HIV and HIVST. Surveys were crucial to meeting the second objective. The team distributed a survey that assessed the perceived risk of HIV, awareness of HIVST, and misconceptions regarding HIV and HIVST.

Figure 1. IQPISSP3 team members at Siam Square Table-Sitting Event

To accomplish the final objective, the team designed an educational program that was delivered via table-sitting. Since the target population is a convenience sample in which most participants are CU students, the team held these table-sittings at various locations close to CU that university-aged students frequent. The team provided incentives to encourage people to take

the survey and participate in activities at the table. To further educate participants, the team handed out pamphlets with detailed information about HIVST and included a condom inside to further encourage safe practices to prevent HIV transmission. To gain more survey responses, the team placed Quick Response (QR) codes on top of the table and on a cloth hanging over the front, making the survey more accessible to participants.

Findings

The analysis of collected data has presented the following findings, which were grouped into the following two categories:

1. Successful methods to educate people aged 18-22 years old living in Bangkok about HIV and HIVST
2. Attitudes and Awareness of people aged 18-22 years old around HIV and HIVST in Bangkok

Based on the number of responses collected, the team found Instagram to be a successful way to reach the target audience of people aged 18-22 years old living in Bangkok. With the help of our influencer team member, the team was able to reach an audience in a short period of time. Table-sitting was also successful in reaching our target population, but the team deemed it to be less efficient than Instagram due to the amount of time and work required to produce an event. To encourage participation, the team found that positive messaging of HIVST and incentives of prizes, a mascot, and an influencer team member were useful in attracting people to the table.

Across the target age group of people aged 18-22 years old living in Bangkok, there were no major differences in responses given across age, method, or educational status. Therefore, data

from Chulalongkorn students can be generalized to the rest of the population. People from the target population answered 75%-85% of the HIV/HIVST misconceptions correctly. In terms of HIVST awareness, 67% of people are unaware of HIVST. While 33% of participants are aware of HIVST, only 21% know where to find an HIVST kit. Finally, the team found that 80% of survey participants do not think they are at risk for HIV. With perceived risk being so low, there is concern that people will not take the proper actions to protect themselves.

Conclusion and Recommendations

Based on our findings, the team believes the lack of HIVST usage is tied to a lack of awareness of HIVST and low perceived risk. To increase HIVST usage, the team developed a list of recommendations. First, the team recommends hiring influencers to post and distribute HIVST information on social media to efficiently increase HIVST awareness to our target population. The team also recommends educating the target population on HIV risk through educational methods so a person's perceived risk can better correlate with their actual risk. Since around 75% of people had general HIV knowledge but lack knowledge about HIVST, the team recommends that resources, time, and effort are not spent on general HIV education. Fourth, the team recommends that the IHRI investigates the reasons for the lack of HIVST usage in people who are both knowledgeable of HIVST and have a high self-perceived risk. Finally, the team recommends that the IHRI investigates the correlation between HIV stigma, self-perceived risk, and a lack of use of HIVST kits. Ultimately, through this project's set of recommendations for the IHRI, the team hopes to increase the number of people aged 18-22 years old using HIVST so that more people can be made aware of their HIV status and receive treatment.

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Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
ART	Antiretroviral Therapy
CDC	Centers for Disease Control
COVID-19	Coronavirus Disease of 2019
CU	Chulalongkorn University
FDA	Food and Drug Administration
FSWs	Female Sex Workers
HIV	Human Immunodeficiency Virus
HIVST	Human Immunodeficiency Virus Self-Testing
IHRI	Institute of HIV Research and Innovation
MSM	Men who have Sex with Men
NHS	National Health Service
PEP	Post-Exposure Prophylaxis
PrEP	Pre-Exposure Prophylaxis
QR code	Quick Response code
STDs	Sexually Transmitted Diseases
UNAIDS	Joint United Nations Programme on HIV/AIDS
WHO	World Health Organization

Chapter 1. Introduction

Human Immunodeficiency Virus, or HIV, is a virus that weakens the immune system, leaving the body vulnerable to infections (Centers for Disease Control, 2022). HIV has no cure, but medications can treat it to the point of being undetectable and untransmittable with consistent antiretroviral treatment (ART). HIV transmission occurs via contact with bodily fluids, so early detection of HIV is crucial for halting its spread and progression. However, traditional HIV testing methods are time-consuming and stigmatizing, discouraging people from testing.

To diversify HIV testing options, the World Health Organization (2019) formally endorsed HIV Self-Testing (HIVST) kits. HIVST kits are designed to provide early detection of HIV, which leads to early treatment (Joint United Nations Programme on HIV and AIDS, 2014). In 2021 the World Health Organization estimates that 38.4 million people were living with HIV at the end of 2021. In 2022, the AIDS data hub estimated that 520,000 adults and children were living with HIV in Thailand (2023), but only 94% of those with HIV were aware of their HIV status (Joint United Nations Programme on HIV and AIDS, 2022). HIVST is relatively new, becoming available in Thailand in April 2019 after the Thai FDA approved HIVST kits to be sold by pharmacies. The WHO identified more methods, which will be discussed in Chapter 2, to help increase the usage of HIVST. However, Thailand has not disclosed the implementation of HIVST programs following the WHO's recommendations, so it is unclear if a strategy to promote the use of HIVST exists yet (World Health Organization, 2021). Additionally, the project's sponsor, The Institute of HIV Research and Innovation (IHRI), has not been able to promote HIVST kits via an in-person event.

While HIVST provides a way to close the gap between those living with HIV and those aware of their HIV status, several barriers prevent HIV testing. Shafik et al. (2021) at Chiang Mai University found that most people surveyed lacked awareness of HIVST and held negative attitudes toward the test. Out of 403 adult residents of the Sanpatong district, Chiang Mai province, only 14% were aware of its existence. Other potential barriers include the cost of the kit, lack of accessibility, and the stigma associated when purchasing a kit. These barriers have prevented doctors and other health officials from promoting HIVST. There is also a lack of recent research on the attitudes and awareness of HIVST among people aged 18-22 years old living in Bangkok, the project's target population.

The project's goal is to collect data to inform future educational programs for the IHRI to increase awareness and acceptance of HIV self-testing of people aged 18-22 years old living in Bangkok. Three objectives were needed to accomplish this goal. First, the team aimed to gain a greater understanding of attitudes and awareness of HIV and HIVST in the target population. Then, the team determined attitudes and awareness of HIV and HIVST in this project's target population. Lastly, the team piloted possible education methods and materials for the project's target population. To accomplish the first objective, interviews were conducted with IHRI staff to better the team's understanding of HIV and HIVST in Bangkok. A focus group of five Chulalongkorn students from different disciplines was conducted to gain context on how students view HIV and HIVST. Following this, surveys were conducted to determine the awareness of HIVST and identify common misconceptions about HIV and HIVST amongst the target population. After analyzing the data collected, educational materials were designed, and methods to educate people about the project's target population were developed and disseminated through

table-sittings. The project's ultimate goal was to recommend ways to increase the awareness and acceptance of HIVST and identify barriers preventing the use of HIVST.

Chapter 2. Background

In this chapter, context and background are given about HIV and HIVST. First, the nature of HIV/AIDS is reviewed, as well as the history of its prevalence in Thai society. Then, the development of HIV self-testing (HIVST), and its importance in HIV/AIDS preventative care is described, including a review of the current policies, attitudes, and beliefs of HIVST in Thailand. Finally, the team discusses the IHRI's involvement in HIV/AIDS prevention in Thailand and briefly reviews its mission for this project.

2.1. What is HIV?

Human Immunodeficiency Virus (HIV) is a virus that has spread across the globe and has no known cure (Centers for Disease Control, 2022). Since it first emerged in 1981, the World Health Organization estimates that 84.2 million people have been infected with HIV worldwide (2022). HIV weakens the immune system by destroying CD4 T cells, which detect infections and abnormalities in the body. The destruction of CD4 T cells increases the risk of other infections (Aavani, 2019). Since HIV destroys CD4 T cells and makes copies of itself, the human body will try to respond by producing more CD4 T cells but will eventually be unable to keep up with the demand (Avani, 2019). Over time, the immune system is weakened, reducing the body's ability to fight off other infections (CDC, 2022). HIV targets the immune system but also affects the eyes, circulatory system, kidneys, digestive system, skeletal system, nervous system, and skin. HIV can lead to AIDS, the most severe and deadly stage of the virus.

During the initial infection, a person may experience a fever, sore throat, and body rash (Centers for Disease Control, 2022). Other symptoms include swollen lymph nodes, fatigue, and chills. According to the National Health Service (NHS) of the UK (2017), about 80% of people infected experience these flu-like symptoms, while some people never experience any symptoms. It is important to note that following initial infection, a person with HIV can transmit the virus more easily (NHS, 2017). Initial symptoms typically last 1-2 weeks before they subside, and HIV may not cause any other symptoms for many years. During this time, the virus remains active and progresses throughout the body, inflicting more damage on the immune system. The infected person becomes increasingly immunodeficient, resulting in a higher chance of developing severe illnesses, such as tuberculosis, cryptococcal meningitis, severe bacterial infections, and certain cancers.

HIV is transmitted through the exchange of bodily fluids, including blood, breast milk, semen, and vaginal secretions (Centers for Disease Control, 2022). It is not transmitted through external contact such as kissing, hugging, or shaking hands. Certain risk factors that increase a person's chances of contracting HIV include engaging in sexual activity without protection, having another sexually transmitted disease, sharing contaminated needles or other injecting equipment, receiving unsafe injections, and experiencing accidental needlestick injuries. According to the US Centers for Disease Control (2022), HIV transmission can be prevented by using condoms, pre-exposure prophylaxis (PrEP), and post-exposure prophylaxis (PEP).

The US Centers for Disease Control (2022) has categorized HIV infection into three stages: acute HIV infection, chronic HIV infection, and acquired immunodeficiency syndrome (AIDS). In the first stage, known as acute HIV infection, people typically experience flu-like symptoms and are highly contagious. The second stage is known as chronic HIV infection, also referred to

as asymptomatic HIV infection or clinical latency. The chronic HIV infection stage typically shows few symptoms, but the virus is still very transmissible. If treated, people can remain in this stage for the rest of their lives without progressing to AIDS. If an infected individual does not receive treatment for HIV, they are at serious risk of developing acquired immunodeficiency syndrome (AIDS). AIDS is defined by certain cancers, infections, and other severe long-term clinical manifestations (World Health Organization, 2022).

While there is no cure, HIV is now treatable to the point where the virus is undetectable in the body. HIV can be treated with antiretroviral therapy (ART), which reduces HIV viral load to protect the immune system and prevent transmission (Centers for Disease Control, 2022). Antiretroviral therapy should be started as soon as possible to achieve the best possible patient outcomes. ART comes in the form of pills or less frequent injections. It dramatically reduces the number of HIV cells in the blood, preventing HIV from multiplying and harming the patient or spreading to others. If the HIV viral load is under 200 copies of HIV per milliliter of blood, the virus is considered undetectable and, therefore, un-transmittable.

Early detection of HIV is defined as a positive result within six months of infection. This detection increases the likelihood of reducing the viral load to an undetectable level, which prevents further transmission. Delay of treatment due to unknown HIV status significantly increases a person's risk of developing AIDS. A UK study conducted in conjunction with the National Health Service (NHS) found that people who did not start treatment upon HIV diagnosis had a nearly six times higher mortality rate than the general UK population (May, 2016). Therefore, HIVST is an essential testing option to increase the accessibility of HIV testing and to encourage the general population to become aware of their HIV status. According to Dr. Jakkrapatara Boonruang, a practitioner from the IHRI's Pribta and Tangerine Clinic, the earlier a

person diagnosed with HIV is prescribed ART, the better off they will be in the future (Appendix A). He also emphasized that through their clinic's same-day prescription of ART, patients are more likely to take their medication consistently.

Other hospitals in Thailand have to follow a specific protocol in which they have to start ART within seven days of an HIV diagnosis (Appendix A). However, the Pribta and Tangerine clinic has implemented a "same day ART" protocol, in which the patient starts ART within 24 hours of a diagnosis. After six weeks, the patient will have to make a follow-up appointment via telehealth, and for the first two years after diagnosis, the patient will have to follow up every 3 to 6 months. The clinic's "same day ART" protocol increases the patient's chances of reducing HIV cell count to an undetectable and non-transmissible level because the patient is more likely to seek treatment and take medications consistently. It also can reduce a patient's anxiety surrounding their diagnosis.

Many international organizations aim to reduce the transmission of HIV and improve the lives of those living with HIV. The World Health Organization sets the international standard regarding HIV guidelines and recommendations and encourages HIV education. Another international organization is the Joint UN Programme on HIV/AIDS (UNAIDS), which is co-sponsored by ten UN agencies and has a mandate to "lead an expanded, coordinated, multisectoral global response" (Merson et al., 2008, p. 483). Launched in 1996, UNAIDS now focuses on reducing inequalities of the AIDS epidemic and prioritizing those who do not have access to life-saving HIV services (Joint United Nations Programme on HIV and AIDS, 2021). Other vital international organizations contributing to HIV and AIDS initiatives include the US and UK National Institute of Health, the Bill and Melinda Gates Foundation, the World Bank, and the Global Fund (Merson et al., 2008).

2.2. Thai Culture & HIV

In the past, the majority of HIV cases in Thailand occurred among men who have sex with men (MSM), followed by intravenous (IV) drug users (van Griensven, 2006). Between 2003 and 2005, HIV prevalence increased from 17 to 28 percent among men who have sex with men (MSM) in Bangkok. During that same time, the prevalence of HIV in the population of people who inject drugs increased from 30 to 50 percent. Over 40 percent of new HIV infections were found among Thai women in 2005, which can be linked to lower wages and the lack of condom use in the illegal sex trade. Moreover, the number of female sex workers (FSWs) infected with HIV working in bars, clubs, and massage parlors has increased significantly (Park et al., 2010). Overall, the number of HIV cases in Thailand has decreased over the past decade while the number of infected individuals on antiretroviral therapy (ART) has increased (Joint United Nations Programme, 2021). In 2005, 690,000 people were estimated to be living with HIV in Thailand, and only 100,824 people were on ART. In 2021, 490,362 people were estimated to be living with HIV in Thailand, and 447,061 people were on ART. The increased number of people on ART is primarily due to the initiatives created by the Thai government to combat HIV infections.

The Thai government tasked itself to reach the United Nations' 95-95-95 international goal of eliminating HIV as a public health crisis (Joint United Nations Programme, 2018). The 95-95-95 goal is that 95% of people living with HIV know their HIV status, 95% of people who know their HIV-positive status are accessing treatment, and 95% of people on treatment are virally suppressed.

The Thai Royal Family has sponsored multiple HIV prevention programs, such as Princess Soamsawali, who created a "fund for the prevention of mother-to-child HIV" in 1996 (Joint

United Nations Programme on HIV/AIDS, 2020). Other programs, such as the Princess PrEP program, which provides PrEP to most at-risk populations, also strive to prevent the transmission of HIV. The Thai government also provides free antiretroviral therapy to everyone and includes PrEP in its universal healthcare package. While Thailand has created programs that have effectively reduced the transmission of HIV, there is still a large gap between people who are living with HIV and people who are on ART.

Currently, the majority of the Thai general public understands that it is not that easy to get infected with HIV, but there are still common misconceptions about HIV being spread (Appendix J). Whether it is about the transmission or the symptoms of HIV, these misconceptions have affected how the general public views people living with HIV. Without the correct information about HIV, others will try to avoid people living with HIV, damaging their reputation and social life. For example, the National Health Examination Survey conducted in 2014 found that about 59% of the general Thai population had stigmatizing attitudes toward people living with HIV (Srithanaviboonchai et al., 2017). In 2021, a study in northern Thailand found that 44.4% of its adult population agreed that they were uncomfortable buying food from shopkeepers with HIV, and 23.6% thought that children with HIV or AIDS should not be in the same class as other children (Shafik et al., 2021). This line of thinking comes from the belief that HIV can be easily transmitted through physical touch and that people with HIV are lesser than others. This stigma can make the life of someone living with HIV more difficult.

Since Thai society tends to stigmatize people living with HIV, they can feel isolated and discriminated against (Srithanaviboonchai et al., 2017). They typically feel shame as a result. People living with HIV can also feel rejected by those around them, which may significantly affect their mental health. From the interview with Prapawarin Sittisatid, a care and counseling officer

for the Pribta and Tangerine Clinic, the team learned of one case study about a 17-year-old trans woman with HIV (Appendix B). Before she understood her HIV diagnosis, she felt ostracized to the point where she did not eat meals with her family. With this stigmatization existing in Thai society, people are afraid to associate themselves with HIV, including specific behaviors that may increase a person's risk. According to a study conducted in Nonthaburi Province, most men and women aged 15-59 living in the province had not been tested for HIV. 96% of participants who had not been tested for HIV listed having no or low risk as the reason for not testing (Musumari et al., 2020). Other reasons for not testing included fear of knowing the results, not knowing where to get tested, and being unable to afford a test. Due to stigma and lack of perceived risk, people are discouraged from getting tested for HIV. Consequently, people will remain unaware of their status, possibly increasing the chance of transmitting the virus to others. The stigma surrounding HIV will affect not only a person's life by decreasing the likelihood of good patient outcomes, a patient's quality of life and social reputation.

2.3. HIV Self-Testing

HIV Self-Testing (HIVST) refers to the process where a person collects their oral fluid and tissue sample or blood sample using a rapid HIV test. (World Health Organization, 2019). The person receives the results in the privacy of their desired location, such as their home or safe space, and can take the necessary steps to seek treatment. HIVST kits provide a safe space for a person to test privately (Shafik et al., 2021). The World Health Organization (2019) recommended HIV self-testing "as a safe, accurate and effective way to reach people who may not test otherwise" (p.

2). A person taking an HIV self-test in their home is less likely to experience the anxiety or pressure they may associate with a healthcare setting. Less anxiety leads to more tests, which leads to more people knowing their status and earlier diagnoses. According to the interview with the Tangerine clinic's care and counseling officer, Prapawarin Sittisatid, the clinic sent 65 self-testing kits to the general population from October 2022 to January 2023 (Appendix B). There were three reactive results out of the 65. All three people whose results were reactive were then tested in a healthcare setting and officially diagnosed with HIV. HIVST is an essential gateway for early detection of HIV, which is crucial to treating it (May, 2016). From an interview with Dr. Jakkrapatara Boonruang, it is crucial to note that HIVST is only used as a screening test (Appendix A). Unlike a diagnostic test, HIVST cannot definitively confirm an HIV diagnosis, so a "positive" result is referred to as a reactive result. If a person receives a reactive result from an HIVST kit, it is recommended that they seek testing from a healthcare professional and outside counseling. A delay in diagnosis can increase the risk of transmission and the risk of developing AIDS. As such, HIVST is an excellent tool to increase early detection. The WHO (2019) provided an HIVST kit service delivery model, highlighting community-based programs and online ordering systems as effective modes of distribution. Ordering online adds a layer of anonymity and privacy, encouraging those in fear of

Figure 2. Contents of an OralQuick HIV Self-Testing Kit. This photo was taken by the IQPISSP3 research team on 19 January, 2023.

HIV stigma to test. They also recommended retail outlets, pharmacies, vending machines, and the workplace as potential delivery methods.

A study conducted in South Africa found success in creating a smartphone app that informed the user on how to use HIVST kits and gave information about HIVST (Pai et al., 2013). Out of the 251 healthcare professionals from the University of Cape Town and 12 young adults (aged 18-25 years), one hundred percent of the participants preferred HIVST over any other testing method. It is also important to consider the preferences between the self-testing kits. According to a study by the World Health Organization (WHO) in 2016, people who considered themselves part of key populations prefer oral-based kits because they state they are less painful than blood-based kits. On the other hand, other people preferred the blood-based kit rather than the oral-based kit, as they believed a blood sample would provide more accurate results. (World Health Organization, 2016). HIVST is a fast, easy, and cost-effective way to test regularly. HIVST has become reliable and accurate, with 4 HIVST kits having a 98.5% - 100% sensitivity (Global Fund Quality Assurance Policy for Diagnostic Products, 2022). This information is crucial to increasing and improving the use of HIV self-testing kits in Thailand.

2.4. Awareness and Attitudes of HIVST in Thailand

The Thai Ministry of Public Health recently announced a law permitting the sale of HIV self-testing kits in April 2019 (Ministry of Health, 2019). Increasing access to HIV self-testing enables a person to receive an early diagnosis, confirmation, and appropriate treatment. This law aims to prevent the transmission of infection and reduce the prevalence of new HIV infections. Currently, three kits are approved to be sold in pharmacies and online in Thailand (Ministry of

Health, 2019). The price for blood-based HIVST is approximately 550 to 700 baht, and oral-based HIVST is approximately 250 to 350 baht.

One potential issue involving HIVST kits is a lack of awareness(Tun-atiruj, 2019). Since being approved by the FDA in 2019, HIVST kits are relatively new to Thai society. HIVST kits are not well advertised in stores or online due to the policies of the FDA (Appendix C). Although younger people tend to have more awareness of HIVST, it is still low amongst the general population. The lack of HIVST advertising also may highlight a significant gap in accessibility, as people may not know where to access an HIVST kit.

While HIVST kits increase testing accessibility, it is crucial to recognize the barriers that prevent people from obtaining a kit. One barrier is the cost of the HIVST kits. For people with a low income, the price of HIVST kits may outweigh the convenience and privacy the self-test provides (Joint United Nations Programme on HIV and AIDS, 2014). Also, HIVST kits are not listed in the guidelines from the Thailand National Strategy to End AIDS 2017 - 2030, which means HIVST cannot be given out for free by public healthcare services (Appendix A). An additional barrier to obtaining HIVST kits is that when purchasing a kit in a pharmacy, a person must ask a pharmacist for a kit (Shafik et al., 2021). Currently, Thai pharmacies sell HIVST kits behind the counter, requiring a person to ask a pharmacist. This barrier may discourage a person from buying a kit at the pharmacy due to the perception and stigma associated with HIV. There are options to buy HIVST kits online, which is more confidential and convenient, as it is delivered to an address that the customer chooses. However, not all kits sold online are approved by the Thai FDA, making it difficult to buy a reliable test.

Another barrier is the lack of resources provided through HIVST kits. As stated before, HIVST kits screen for HIV and require a person to follow up with more definitive tests for an official diagnosis. As a result, health officials are cautious about promoting HIVST because they believe the results could be misleading. They are concerned that reactive HIVST results may discourage people from disclosing their initial test results to health professionals and increase the risk of self-harm (WHO, 2016). In a 2016 study conducted in both urban and rural areas in Kenya, 61% (n=1133) of people said HIVST kits might be misused, and there were also concerns about suicide or non-disclosure of self-test results. HIVST kit messaging needs to be clarified to decrease misusage and to encourage those who self-test to seek the proper resources if they receive a reactive result. A final social barrier preventing health officials from promoting HIVST is the belief by some groups of people, including medical staff, that it will increase promiscuity (Appendix A). While this belief is rooted in the stigma surrounding HIVST and is not supported by research, it is still important to consider as it prevents doctors from promoting HIVST.

In summary, the potential barriers to HIVST kits include lack of awareness, high cost, low accessibility, lack of resources provided by test kits, and stigma associated with promoting HIVST kits. In order to increase the usage of HIVST kits, the team must consider these barriers that may prevent a person from choosing this option and find ways to promote HIVST effectively.

2.5. IHRI (Institute of HIV Research and Innovation)

The project's sponsor, the Institute of HIV Research and Innovation (IHRI), is a non-profit organization based in Bangkok, Thailand (Institute of HIV Research and Innovation, 2020a). Their precursor, PREVENTION, was founded in 2002 by The Thai Red Cross AIDS Research Centre to reduce mother-to-child HIV transmission. In March 2020, PREVENTION merged with

SEARCH, an organization founded in 2009 to research acute HIV infections and neuro-HIV, to form the IHRI. With twenty years of experience in research and sexual health programs about HIV, they are known for their expertise in this field. They conduct advanced clinical and implementation research on HIV. Additionally, they advocate for other health-related issues and strengthen the capacity of community health workers and healthcare providers. They also collaborate with government health networks, international organizations, and civil society organizations to address health issues focusing on sexual health.

The IHRI's primary mission is to provide healthcare services for those with HIV and improve HIV healthcare through their research (Institute of HIV Research and Innovation, 2020a). The IHRI has provided information about past research on HIV as well as in-depth information on HIVST. IHRI also has two leading health clinics, "Pribta" and "Tangerine," through which they provide various medical services focusing on sexual health.

Pribta is a clinic with a team of experienced medical staff for sexual health services (Institute of HIV Research and Innovation, 2020b). They specialize in treating sexually transmitted infections (STI), including HIV, herpes simplex, HPV, gonorrhea, chlamydia, and syphilis. They also provide COVID-19 testing and vaccination, clinical checkup, and mental health services.

Tangerine is Thailand's first free one-stop transgender-specific health clinic supported by highly trained staff (Institute of HIV Research and Innovation, 2020c). All of the services are free because it is a research-based clinic. They provide various services for all transgender people, from advising about gender affirmation surgery, hormone therapy, PEP, and PrEP support.

2.6. Summary

HIV has been a significant and ongoing issue in Thailand since the epidemic first emerged in 1981 (Merson et al., 2008). Although the government and ministry of health have supported many HIV initiatives, the stigma surrounding HIV continues to discourage many people from addressing their HIV status. HIVST is an accessible and private screening test option that can be purchased at pharmacies in Thailand and online. However, since HIVST is relatively new to Thai society, it is believed that the general public is largely unaware that HIVST exists. There are also many potential barriers to obtaining an HIVST kit, including cost, reduced accessibility, lack of resources provided by self-testing kits, and the stigma associated with promoting HIVST kits. Based on the interview with Pribta and Tangerine research physician Dr. Jakkrapatara Boonruang, the IHRI does not have significant data on HIV and HIVST among people aged 18-22 years old (Appendix A). He also noted that HIVST advertising has been targeted toward specific groups and has not been widely promoted among the general public, including college students. The following chapter will discuss the team's objectives and methods applied to address the lack of HIVST data among people aged 18-22 years old.

Chapter 3. Methods

The goal of this project was to collect data to inform future educational programs for the IHRI to increase awareness and acceptance of HIV Self-Testing of people aged 18-22 years old living in Bangkok. The project team collected data from people aged 18-22 living in Bangkok, with a convenience sample composed mainly of Chulalongkorn students. The project team gathered and analyzed data on HIV and HIVST to guide the development of this project's recommendations.

To complete the goal of the project, the team fulfilled the following objectives:

1. Gain a greater understanding of attitudes and awareness of HIV and HIVST of people aged 18-22 years old living in Bangkok.
2. Determine attitudes and awareness of HIV and HIV self-testing (HIVST) in people aged 18-22 years old living in Bangkok.
3. Pilot educational methods and materials for people aged 18-22 years old living in Bangkok

To accomplish these objectives, the project team interviewed IHRI staff to gain perspective on the attitudes and awareness of HIV and HIVST in Thailand. The project team then conducted a focus group of Chulalongkorn University students to assess the attitudes and awareness of HIV and HIVST on campus. The project team also distributed a survey assessing HIV knowledge, perceived risk, and HIVST awareness of the project's target population. Finally, the project team designed and implemented an educational event called "table-sitting" to spread awareness of HIVST. This chapter explains the methods used to achieve the project's goal and objectives.

3.1. Gain a greater understanding of attitudes and awareness of HIV and HIVST of people aged 18-22 years old living in Bangkok.

The first objective the team completed was gaining a general understanding of the current state of HIV, HIVST, and healthcare in Thailand. To understand the current situation in Thailand, the team undertook a research process involving reviewing available data, conducting interviews, and conducting a focus group. The team initially reviewed research and publications on HIV and HIV self-testing in Thailand and globally, including reports from local and international organizations, surveys, and studies. With the help of the IHRI, the team reviewed HIV prevalence, population, and testing data from the IHRI location in Bangkok to understand the current prevalence of HIV and HIV self-testing in the city. The team also reviewed IHRI data and the organization's website to examine the testing services offered and determine the availability of testing and treatment, including the types of services offered, the availability of testing centers, and the cost of testing. Next, the team interviewed IHRI healthcare and marketing staff to gain an expert understanding of HIV and HIVST in Bangkok. Finally, the team held a focus group with Chulalongkorn University undergraduate students to gain perspective on the attitudes toward HIV and awareness of HIVST on campus. We also had focus group participants test our survey, explained in objective 2, to improve the quality of our survey. By accomplishing these subsets of the first objective, the team was able to provide the IHRI with valuable information for designing and implementing educational programs to increase awareness of HIVST across college campuses in Bangkok.

3.1.1. Interviews with IHRI Staff

This project's sponsor, the IHRI, has some of the best HIV experts in Thailand. Interviewing IHRI experts gave invaluable information to help get an initial understanding of the current situation in Bangkok. To accomplish this, the team interviewed the following staff from the IHRI: Pribta and Tangerine Research Physician Dr. Jakkrapatara Boonruang (Appendix A), Tangerine Counselor Prapawarin Sittisatid (Appendix B), the IHRI Marketing and Communications Manager, Krittaporn Termvanich (Appendix C), and Pribta Counselor Kanchanok Rurkoukos (Appendix D). These interviews allowed the team to understand their experiences working in occupations involving people living with HIV and HIVST policies in Bangkok. Each interview included questions about what they believe are the general attitudes toward HIV, attitudes toward those infected, attitudes toward testing, and common misconceptions about HIV and HIVST. For healthcare staff, the team specifically asked about attitudes towards HIV-related healthcare and other trends they notice among their patients. For marketing staff, the team asked about campaigns currently in place for HIVST, past and current IHRI advertisements and initiatives, and plans for future outreach programs.

The interview protocols and questions are detailed in Appendices A and B. Team members fluent in Thai conducted and translated interviews when the interviewee chose to be interviewed in Thai. If the interviewee chose to be interviewed in Thai, the Thai audio recording of the interview was translated into English after the interview was complete. Audio recordings of the interviews were stored on a password-protected computer until they were transcribed. Upon transcription, the recordings were destroyed. From each transcript, the team looked for specific responses that answered questions about the history of HIV in Thailand, current government initiatives to reduce HIV transmission, and assessing HIVST awareness across different

populations. The responses were referred to as critical points, which are summarized and presented in chapter 4. These interviews were conducted in accordance with the healthcare expert interview protocol (Appendix E) and marketing staff interview protocol (Appendix F) developed from the guidelines provided in "Writing Interview Protocols and Conducting Interviews: Tips for Students New to the Field of Qualitative Research" (Jacob & Furgerson, 2012). The desired outcome from interviews with the IHRI was to gain a greater level of understanding and identify common misconceptions of HIV and HIVST, which was then implemented into surveys for objectives 3.2 and 3.3.

3.1.2. Assessing attitudes and awareness of HIV and HIVST at Chulalongkorn University

To gain a better perspective on HIV awareness and attitudes among university students, a focus group was conducted with five CU students from different disciplines. By bringing together a small group of individuals from various programs of study, the team gained valuable insight into the attitudes and opinions of students of the target population (O.Nyumba et al., 2018). Focus groups provide a platform for open dialogue, which allows the team to engage with the target demographic of Chulalongkorn University students and test out potential strategies for encouraging HIV self-testing. Additionally, focus groups can provide valuable feedback about how best to design and implement the project, allowing the team to adjust their approach as needed. By directly listening to CU students' discussions and thoughts about HIV and HIVST, a clearer understanding was gained to better guide the project.

Before the focus group, participants were asked to complete the survey and fill out an individual feedback form. The feedback received from participants focused on sections they

identified as unclear and confusing. Their feedback was considered for the final survey revisions, and changes were made accordingly.

The focus group was held in the "BSAC Office" meeting room. The following protocol is based on the characteristic criteria of a focus group detailed in the publication, Spotlight on focus groups (Leung & Savithiri, 2009). The team was divided into the following roles: leader, timekeeper, minutes recorder, video recorder, and assistant. The leader was responsible for facilitating the discussion. The timekeeper was responsible for tracking the discussion time, including the time the participants were allowed to discuss each question and the time remaining for the entire discussion. The timekeeper alerted the leader and minutes recorders for time-related inquiries. Two students recorded the minutes of the discussion in Thai. The recorder was responsible for video and audio taping the discussion to refer back to specific points later in the project, provided that all participants provided consent to be recorded. All recordings were stored on a password-protected computer, and after they were transcribed, they were destroyed. Two assistants aided in each role when needed to ensure the discussion ran smoothly.

The focus group questions covered topics related to general HIV knowledge and attitudes, scenarios involving loved ones and HIV, awareness and attitudes towards HIVST, and attitudes towards current educational program design. These questions were designed to foster a focused discussion (Appendix G). The questions were organized in a specific order, beginning with more open-ended questions and then moving on to more specific scenarios as the discussion continued (How to Develop Questions for a Focus Group, 2017).

The focus group participants consisted of five CU students, each from different disciplines. The initial discussion limit was set to 1 hour and 30 minutes, but students answered all initial and

follow-up questions in 40 minutes. The discussion was designed to be free-flowing to allow the participating students to discuss their opinions with limited interruptions. The leader was also given the authority to ask new questions similar to the original question to prompt the discussion further. The timekeeper alerted the leader when the set time for each question had finished and moved on to the following questions.

The focus group was transcribed from the audio recording utilizing the video recording. The transcript was then reviewed based on each question to identify common themes, which included attitudes and perceptions towards HIV, awareness of HIVST, and positive or negative responses to table-sitting. Results from the focus group allowed the team to gain valuable insight into the attitudes toward HIV and awareness of HIVST at Chulalongkorn University. The results of this objective influenced the design of the methods for table-sitting in objective 3.

By undertaking this process, the team gained a better understanding of the current state of HIV, HIV self-testing, and the healthcare system in Bangkok. The results from these methods enabled the development of targeted strategies, educational methods, and materials to encourage HIV self-testing at CU and other college campuses across Bangkok.

3.2. Determine attitudes and awareness of HIV and HIV self-testing (HIVST) in people aged 18-22 years old living in Bangkok.

The second objective was to investigate the awareness and attitudes toward HIV and HIV self-testing of the target population (people aged 18-22 years old). This objective was achieved by conducting a survey disseminated to a sample of the target population. The survey aimed to assess the knowledge of HIV misconceptions and perceived risk, which helped inform the team of the

attitudes toward HIV. It also aimed to determine the awareness of HIV self-testing, which allowed the team to make informed decisions that guided the project in developing the educational methods in objective three and solidifying the list of recommendations. Awareness is the first step in encouraging HIV self-testing, and as such, it was important to determine if the target population was aware of HIVST.

To assess the awareness of HIVST amongst the target population, the team distributed a survey asking people if they were aware of HIVST and if they knew where to purchase a kit. The project's initial research determined that HIV messaging has focused on key populations in the past, which has left a gap in HIV education and advertising HIV initiatives such as HIVST kits. The interview with Krittaporn Termvanich, Marketing manager of the IHRI, revealed that the advertising of HIVST kits is strictly regulated, which has limited the effectiveness of past advertisements (Appendix C). The target population was also surveyed to see if they believed they were at risk for HIV based on a scale from 1 to 10, 1 being very low risk and 10 being very high risk. By including questions about perceived risk, the team obtained more information about the target population and their individual risk for HIV.

Identifying misconceptions surrounding HIV and HIVST allowed the project team to develop specific recommendations to help address them. To determine common misconceptions, a True/False section was added to the survey, formulated from the misconceptions identified in the IHRI staff interviews. The survey (Appendix H) intended to highlight HIV and HIVST topics the target population was most confused about. The quiz was designed in a “True or False” format, with all questions developed from the initial research (Fenneld, 2021) and interviews with IHRI staff. The team identified trends from the responses and misconceptions that need to be addressed based on demographic data. Some example questions include (Appendix H):

- Treatment can halt the progression of HIV: T/F (True)

  (การทานยาสามารถยับยั้งความรุนแรงของเชื้อ HIV)
- If I get HIV, I can still do the things I enjoy about my life: T/F (True)

  (สมมติว่าฉันติดเชื้อ HIV ฉันจะยังสามารถใช้ชีวิตอย่างมีความสุขได้)
- HIV and AIDS are the same thing: T/F (False) (HIV กับ AIDS คือโรคเดียวกัน)

The survey was designed to find the following data points:

- The perceived risk of HIV.
    - The average perceived risk of HIV.
    - The perceived risk of HIV for those who have used HIVST kits.
    - The average perceived risk of HIV for those who have used HIVST kits.
- The percentage of respondents who are aware of HIVST.
- The percentage of respondents who know where to find an HIVST kit.
- The percentage of respondents who have used an HIVST kit.
- The percentage of respondents answering each question correctly on the misconception section.

It was necessary to determine the average perceived risk to understand how the target population viewed their risk level for HIV and to assess the accuracy of the data. A low perceived risk could indicate a lack of understanding of HIV risk amongst people aged 18-22. Additionally, it was important to determine how many students were aware of HIVST and if they knew where to find the kits. This section helped measure the lack of awareness of HIVST. Finally, it was necessary to identify any misconceptions about HIV and HIVST. If survey participants consistently answered a question incorrectly, that could indicate a significant knowledge gap. Each

question was examined individually to identify specific knowledge gaps and misconceptions rather than the overall quiz score.

As stated in objective 1, the survey was initially distributed to the focus group participants along with an individual feedback form. The feedback form asked participants to state what they thought was good and what needed to be revised. They also identified confusing sections that needed to be clarified. From their feedback, the survey was revised and then used the following distribution methods to reach the target population.

A survey has two main types of questions: closed questions and semantic differential scale. A closed question is where the possible answers are defined in advance, so the respondent is limited to one of the responses given. For this survey, which was a True and False survey, all respondents made a 50/50 decision. Semantic differential scales are used to rate individual statements on several different dimensions (SurveyMonkey, 2023). To encourage higher response rates, our survey was simplified and shortened.

Based on the research, with a population of Chulalongkorn undergraduates of around 27,969 (Office of the Registrar CU, 2022), the target sample size was approximately 400 (Qualtrics, 2020). The sample size was estimated under the assumption of a completely random survey, and while 18 to 22-year-old Chulalongkorn students were the target, people who chose to respond were random. The plan was to send out around 40,000 surveys (based on Natpawin's follower count) with a 1% response rate, hoping to receive approximately 800 responses to solidify the results. (Qualtrics, 2021). This sample size and response estimations had a 95% confidence interval and a 5% margin of error.

The survey was distributed in various ways to ensure the team received as many responses as possible. First, the CU students on this project's research team posted the survey on social media. One of the CU students on this project's research team is Natpawin Petcherdsak. Natpawin is an "influencer" with 39.9 thousand followers on Instagram (last updated on 16/02/2023). Influencers are social media content creators with a large following on a platform like Instagram. Influencers have become increasingly popular in advertising, where companies dedicate a large amount of their advertising budget to pay influencers to promote their products. This is because influencers' followers tend to associate their positive perception of the product with their positive perception of the influencer, which creates positive behavioral intentions to purchase and recommend (Belanche et al., 2021). Utilizing his influencer platform, the survey was distributed through an Instagram post and Instagram story. The other Chulalongkorn students working on this project also posted the survey link on their Instagram story, where most of their followers are fellow Chulalongkorn students. They also sent the survey link to school-wide group chats with approximately 900 people using the social media app Line. Using these social media platforms enabled the team to reach a wide range of students at the university.

The following distribution plan used Chulalongkorn professor's email distribution lists. Professors were emailed and asked whether they would be interested in sharing the survey, which included a QR code unique to this distribution method. The team chose professors currently teaching general education classes, including chemistry, physics, and introductory writing courses, because they are required for many faculty departments and have large class sizes. Other health science classes with smaller class sizes were contacted because they would be more likely to distribute the survey to their students as it applied to their course content. Chulalongkorn student clubs were asked via Instagram to send out the survey through their email distribution list, but they

were unable to post it to their platform. The next distribution strategy was to physically post a QR code linked to the survey in the Mahamakut building. Two QR codes were posted on bulletin boards in the building. The final distribution strategy involved presenting a QR code linked to the survey at the table-sitting events, which is detailed in objective 3. Participants who visited the table and spoke with the project team members were asked to complete the survey.

These distribution methods maximized the sample size of the target age group. In order to track the effectiveness of each method, different versions of the same survey were created. The surveys had the same questions but were marked with different numbers. The survey numbers are as follows:

1. Instagram influencer posts and stories
2. Professors sending the survey to their students via email list
3. Student clubs sending the survey to club members via Line group chat
4. QR code posters around the Mahamakut building
5. Table-sitting

Separating the survey based on the distribution methods helped organize the data and assess which methods received the most responses. The results and limitations of these distribution methods were then assessed to recommend distribution methods for the project's sponsor.

Once the survey was closed, responses were analyzed. Data from all sources, ages, and educational statuses were combined to find the percentage of each demographic, average perceived risk, the scores for the misconception quiz, and the percentages of HIVST awareness and usage. Similarities and differences between the data sets were compared using T-tests. T-tests find the

difference between two data sets and display it as a p-value (Bevans, 2020). This p-value can be used to determine the statistical significance of two data sets.

Values of p	Inference
$p > 0.10$	No evidence against the null hypothesis.
$0.05 < p < 0.10$	Weak evidence against the null hypothesis
$0.01 < p < 0.05$	Moderate evidence against the null hypothesis
$0.05 < p < 0.001$	Good evidence against null hypothesis.
$0.001 < p < 0.01$	Strong evidence against the null hypothesis
$p < 0.001$	Very strong evidence against the null hypothesis

Figure 3. A table showing the significance of different p-values (P Value, Statistical Significance and Clinical Significance, 2013)

This data was used to guide and support recommendations in Chapter 5. The information provided by the analysis will be valuable to the IHRI as it will be a good assessment of the problem of HIVST awareness and the perceived risk of people aged 18-22. We hope the IHRI will use this data to guide their future research.

3.3. Pilot possible education methods and materials for people aged 18-22 years old living in Bangkok.

3.3.1 Identify target population and target locations

The target population chosen for the education methods and materials was people aged 18-22 living in Bangkok, with a convenience sample of CU students. To pilot the educational methods for our target population, table-sittings were hosted at times and places where CU students congregated after school. The chosen locations were Siam Square and the Valentine's Day Market

at Chulalongkorn University. Both locations are around CU's campus but differ slightly in demographics. Siam Square attracts the target population of people aged 18-22 but is visited by various demographics, along with CU students. The project's sponsor recommended this location. CU students ran the Valentine's Day Market, and most visitors were expected to be CU students. The event was conducted at each location from 4:00 PM - 7:00 PM.

3.3.2. Table-Sitting

The interviews and focus group completed in objective 1 influenced the project's education program. In the interview with Krittaporn Termvanich, the communications and marketing manager for the IHRI, the team learned that the IHRI had not conducted any in-person events due to COVID-19 (Appendix C). As a result, both the research team and sponsor agreed that an in-person event would be best for this project. From the findings in objective 1, it was decided that the best way to spread awareness and gather survey data was to conduct a "table-sitting". The team decided on table-sitting because it allowed for personal engagement with participants to spread awareness and information (American Association for the Advancement in Science, 2016). Table-sitting also allowed the team to provide personalized support, answering questions people may have about HIV and HIVST, as well as providing guidance on the best ways to access testing.

The process of table-sitting involved researching the best location for the event and reserving the desired space in a public area. Then, it requires setting up a table to promote a specific cause, distribute an item, or fundraise by selling an item/group of items (Booth Fundraising Ideas (Bizfluent, 2021). For this project, the team created a poster with information about HIV and HIVST (Appendix I) and used pamphlets (Appendix I) to supply additional information. Condoms were placed within pamphlets to discreetly encourage safe sex practices while providing

information about the project's sponsor. The IHRI staff highly encouraged using positive language for the event's promotional materials, including posters and pamphlets, as people have responded the best to that in their past events. It was also suggested that the promotional materials not be focused on HIV because the event may be interpreted as promoting a promiscuous lifestyle due to the prevalence of stigma surrounding HIV and HIVST (Appendix J). Feedback from the focus group confirmed that the chosen wording is crucial, specifying that it had to be intriguing but not intimidating, as it might scare people away. Students from the focus group also suggested the creation of a welcoming experience since people can be intimidated by the concept of HIV. Based on their feedback, the team tried to make the table sitting as welcoming of an environment as possible. This was accomplished by creating a prize wheel with various prizes, including candies, snacks, hand sanitizers, small pouches, LEGO bricks, tote bags, and water bottles. The team also rented a heart mascot to attract more people to the table. Heart stickers were also given out at the Valentine's Day Market table-sitting to further encourage the crowd to interact with the table.

The team assessed the deliverables of tale-sitting by counting the number of surveys completed and pamphlets distributed in each 30-minute interval. The number of heart stickers given out was also counted to compare to the total number of surveys completed. Team members also recorded general observations during each event, mainly composed of crowd interactions with the team. The data collected was reviewed to present and inform the findings to the IHRI to plan their future events.

The project team was divided into subgroups to encourage participation during the table-sitting event and to help team members focus on each section's responsibilities. Members one and two were stationed directly behind the table. These members were responsible for directly

engaging with participants, handing out prizes, and discussing HIV and HIVST topics with participants. Members three and four were stationed at the side of the table and were responsible for the prize wheel and handing out pamphlets. When shown a completed survey, members one and two would allow the participant to spin the wheel. Two other members, five and six, with member five in the mascot suit, were responsible for encouraging people in the crowd to visit the table. Member seven held the poster (Appendix I) in the air so that people standing around the table would not block potential participants from viewing it. Members one, two, and seven were also responsible for recording the measurables of the event, including member one recording the number of pamphlets distributed, member two recording the number of survey responses, and member seven recording direct observations from the crowd.

Overall, table-sitting allowed the project team to engage and give participants brief information about HIVST, intending to increase trust and awareness of these kits. Table-sitting was found to have many advantages when aiming to increase awareness and education about HIVST, including the ability to answer participants' questions, provide personalized support, and educate them on HIV and HIVST.

3.4. Summary

The goal of this project was to collect data to inform future educational programs for the IHRI to increase awareness and acceptance of HIV Self-Testing of people aged 18-22 years old living in Bangkok. The team accomplished the initial objectives by conducting informational interviews with IHRI, a focus group discussion of CU students, and surveying the target population on HIV and HIVST using a convenience sample, in which most respondents were CU students. Table-sittings were then conducted to raise awareness of HIVST at Chulalongkorn University. The

following chapter will discuss data analysis using the described methodology in the form of findings. These findings influenced the recommendations for the IHRI, which are found in chapter five of this report.

Chapter 4. Results and Discussion

To view the raw data collected during the completion of the project's methodology, please refer to Appendices A through D for the interview transcripts, Appendix J for the focus group transcript, and supplemental materials for complete survey data.

4.1. Results and Discussion

The findings cover two main themes related to increasing the awareness of HIVST in people aged 18-22: education methods and survey findings. In the first section of findings, the methods observed to be successful at educating the target population in Bangkok about HIVST and HIV will be discussed. The following section will present the critical findings of the surveys, including similarities and differences across ages, methods of data collection, and colleges, as well as misconceptions, awareness, and perceived risk levels of students.

4.1.1. Successful methods to educate people aged 18-22 years old living in Bangkok about HIV and HIVST

Finding 1: The survey received the most responses from Instagram and table-sittings

Ninety-seven percent of all survey responses were received from the Instagram influencer team member Natpawin and the two table-sitting events. Instagram posts and stories were successful, providing 430 responses within five days. Across the two table sittings, 495 responses were gathered over about 10 hours. Most of the responses from Instagram posts and Instagram stories were gathered from Instagram influencer and project team member Natpawin Petcherdsak. Natpawin has approximately 39,900 followers on Instagram (last updated on 16/02/2023). Based

on Instagram's business analysis, Natpawin's Instagram advertisement post reached a total of 26,641 people. Out of the total audience, 64% of viewers were 18-24 years old, with 30.8% of the audience in Bangkok. This falls into the target population of 18-22 years old living in Bangkok.

While able to quickly reach a large number of people in our target population, social media can be more expensive compared to other methods. The influencer must be willing to post content related to HIV, HIV Self-Testing, and possibly STDs. Not all influencers are willing to post or be associated with these topics because HIV still has a strong stigma among Thai people. If the influencer is involved in this content, it may negatively affect them. For the project, Natpawin posted an Instagram story with the key message "This is for research," so the viewers were more willing to help him with the project. Paying influencers to post a specific message or advertisement on their account is expensive. It is likely to be even more expensive to post sensitive HIV content, which is stigmatized in Thailand.

Another successful method was table-sitting in public spaces. In total, the team received 492 total responses from the two chosen locations. While more responses were received through table-sitting than Instagram, the amount of time and work the team needed to conduct each method was considered. Working with an Instagram influencer was much more time effective, with little effort put into designing and posting the survey. Table-sitting was more time intensive, requiring extensive timing to plan and run each event. Based on this, the team determined Instagram to be more efficient at reaching the target audience than table-sitting.

Although less time efficient than Instagram, table-sitting allowed for interactions with people face-to-face. Table-sitting reached a smaller audience, but the team was able to give them more educational materials. Based on the observations, a large crowd resulted in a long wait time for the prize wheel. The team used this to their advantage, thoroughly explaining the project's

goals to participants and answering questions when asked. The team was also able to show the contents of the pamphlets to participants and clarify common misconceptions about HIV or HIVST.

Other survey distribution methods were used, but they were less successful in reaching the target population. QR codes linked to the survey placed around Mahamakut Building did not engage people and only got two responses in total. Asking professors to distribute surveys to their students also produced a low response rate, with 16 professors contacted and only 11 responses. Asking student club executives to distribute the survey to members yielded only 20 responses. These distribution methods accounted for only 3.5% of all survey responses. A potential issue with these methods is that they did not reach a large enough audience to gather sufficient responses.

Finding 2: Tone of messaging and incentives matter in attracting participants to the table for the table-sitting

Two main factors were observed during the table-sitting method that affected the number of people participating in the informational event. Incentives such as a mascot, snacks, prize wheel, and meeting the influencer teammate, Natpawin, caught people's attention and drew them to the table. Also, the tone of messaging for the event was purposefully chosen to attract the target population. Based on the recorded observations, the team found these strategies helpful in attracting people to the table.

The event was designed to focus on a positive message rather than using negative language regarding HIV and HIVST. According to UNAIDS, language shapes beliefs and may influence negative behaviors toward HIV (Joint United Nations Programme on HIV and AIDS, 2015). Part of the UNAIDS initiatives is to reduce the negative terminology associated with HIV, exhibited

through their terminology guidelines published in 2015. The team attempted to use the correct language and content from these guidelines to demonstrate a positive association with HIVST.

Initially, the sponsor suggested that the events should focus on themes and topics that were not directly related to HIV, as HIV- related topics may dissuade people from interacting with the table. The focus group supported the IHRI's suggestion, claiming that CU students would be less likely to visit the table if it directly advertised anything related to HIV. They emphasized that the more general the message was, the more people would be attracted (Appendix J).

Based on their feedback, the slogan was paired with the theme of Valentine's Day using the phrase "Self Love, Self Test". Following our sponsor's advice, an event was created that was fun and allowed participants to be involved while still educating them on HIVST. The team used the Valentine's Day theme by framing the poster and message around love, with pink, red, and purple colors, heart-shaped candies, heart stickers, and a heart mascot. Based on the sponsor and focus group feedback, the positive messaging may have impacted participants. However, the team is unable to determine the effectiveness of positive messaging.

Along with the tone of messaging, multiple incentives were provided for people passing by to encourage them to visit the table. As stated before, there were a variety of prizes ranging from small candies and snacks to tote bags and water bottles provided by the sponsor. These prizes were visible from afar and attracted people to the table. A heart mascot was used at both table-sitting locations along with the prizes. The mascot was large and highly visible from many points on the street, which we believe encouraged people passing by to come to the table. One unexpected observation was that people were willing to complete the survey in return for a photo with the mascot. By taking advantage of this incentive, the team was able to direct people who wanted to take photos to the table to learn more about the project. The mascot was very useful for the Siam

Square location when the team did not use a table and could not provide prizes other than candies. Another major incentive was having Natpawin Petcherdsak present at the table-sitting events. Having an influencer included at the event not only encourages their fans to participate but also encourages them to learn more about the event. Fans trust the influencer and therefore believe the information being presented is important. Natpawin was able to encourage people to attend the events by posting about it on his Instagram account. Many participants were fans of Natpawin and were willing to participate in the event by completing the survey and examining the pamphlet to learn more about HIVST.

4.1.2. Attitudes and Awareness of people aged 18-22 years old around HIV and HIVST in Bangkok

Finding 3: Chulalongkorn students are a representative sample

Across different methods, different colleges, and different ages, the project's survey data stays statistically similar. Therefore, the data was able to be combined and may be generalized to the target population. This result is significant for the difference between colleges because it is now known that Chulalongkorn University student data applies to people aged 18 to 22. The team also knows that data across different ages and successful methods (Instagram and table-sitting) yield the same results, so neither the method used nor the participant's age affects the data. This result means that the accuracy of the data increased and can be combined from all methods and ages into one data set.

The differences in data between methods, college, and age were tested via T-tests. For methods, all of the Instagram data sets were compared with all of the table-sitting data sets. For colleges, all of the Chulalongkorn data sets were compared to all of the non-Chulalongkorn data

sets, which included both other colleges and those not attending college. Finally, for ages, the team compared “under 18 years old” to “18 to 22 years old,” “18 to 22 years old” to “over 22 years old,” and “under 18 years old” to “over 22 years old.” This comparison showed the differences and similarities between all age groups.

Comparing table-sitting data to Instagram data yielded statistically similar results. Other than outliers, the p-values ranged from 0.13 to 0.44. The only p-value that indicated a statistically significant difference was for the True/False survey question “Taking medication can inhibit the severity of HIV infection,” which had a p-value of 0.04. A p-value of 0.04 indicates weak to moderate evidence of difference between data sets (*P Value, Statistical Significance and Clinical Significance*, 2013). Aside from this slight difference, the rest of the data sets showed no evidence of significant statistical difference, demonstrating that Instagram data and table-sitting data are statistically similar.

The comparison of colleges was also crucial to see if the responses from Chulalongkorn University students differed from the responses of people of other educational statuses. It was found that they do not differ. The p-values across all the survey questions ranged from 0.17 to 0.44, excluding outliers. There were no p-values under 0.06, so the responses to all awareness and misconception questions among those who do and do not attend Chulalongkorn University were statistically similar. Therefore, there is no statistically significant difference between Chulalongkorn students and non-Chulalongkorn respondents.

Finally, the team tested all the different age groups against each other to find if there were any statistical similarities or differences. First, the “under 18 years old” group was tested against the “18 to 22 years old” group. The team found p-values ranging from 0.09 to 0.24, meaning none of the data sets were statistically different. For the comparison between the “18 to 22 years old”

group and the “over 22 years old” group, p-values ranged from 0.09 to 0.24, indicating no statistically significant differences. Finally, the “under 18 years old” was tested against the “over 22 years old” group. Excluding two outliers, these p-values ranged from 0.08 to 0.24. The two outliers were 0.01, indicating moderate to good evidence of difference (*P Value, Statistical Significance and Clinical Significance*, 2013). Because these two age ranges could include people of any age other than the “18 to 22” group, some differences were expected. Since all of the other p-values were above 0.08, the team is confident that overall, the ages are statistically similar but start to show some differences when the range is significantly expanded, which is expected.

These T-tests demonstrate that the survey data is generalizable and combinable across methods, colleges, and ages. There are very few comparisons that show weak to moderate evidence of difference. However, since nearly all others show no statistically significant difference, the team is confident that these data sets are statistically similar overall. Only 3 out of 53 comparisons even had weak evidence of statistical difference. This analysis shows that this project’s survey data is generalizable across methods, colleges, and age groups.

Finding 4: Misconception quiz scores ranged from 85% to 72% per question

The survey included an “HIV and HIVST Misconception Quiz”, a true/false quiz designed to highlight people’s misconceptions about HIV and HIVST. One question on the survey had an 85% correct response rate, four questions had approximately a 75% correct response rate, and one question had a 72% correct response rate. One question was omitted. The true/false quiz contained the following seven questions:

1. Taking medication can inhibit the severity of HIV infection. (True/False)
2. Assuming I am infected with HIV, I will still be able to live happily. (True/False)

3. HIV and AIDS are the same disease. (True/False)
4. If I engage in risky behavior such as sex or needle sharing with someone with HIV, there is no way to prevent myself from getting HIV. (True/False)
5. I am at risk of contracting HIV from external contact. (True/False)
6. If I only have sex with my partner, neither of us will be at risk for HIV. (True/False)
7. HIV home testing kits are less accurate than clinic HIV testing. (True/False)

After a discussion with the sponsor and from interview feedback, question 7 was omitted from the results, as the wording was too confusing to provide accurate results. Since HIV self-testing is a screening test while clinical HIV testing is a diagnostic test, the question does not make sense.

Statement 1, "Taking medication can inhibit the severity of HIV infection," received the highest percentage of correct responses by a large margin, with 85.3% of respondents answering correctly. There were four questions that approximately 75% of participants answered correctly. For statement 2, "Assuming I am infected with HIV, I will still be able to live happily," 74.4% of respondents answered correctly. Statement 3, "HIV and AIDS are the same diseases," was answered correctly by 74.1% of participants. For statement 5, "I am at risk of contracting HIV from external contact," 75.8% of those surveyed answered correctly. Finally, statement 6, "If I only have sex with my partner, neither of us will be at risk for HIV," was answered correctly by 74.9% of respondents. These questions all have a correctness rate of around 75%. All of these questions aim to highlight stigmas and gaps in education. The lowest result was from statement 4, "If I engage in risky behavior such as sex or needle sharing with someone with HIV, there is no way to prevent myself from getting HIV." 71.6% of people got this question correct. This question

was on HIV prevention methods, which could indicate that some people lack knowledge of HIV prevention methods.

The misconception quiz had 85% to 72% of people answering questions correctly, depending on the question. 85% of people were correct on the question about HIV medication, 75% of people answered questions correctly about general HIV education and stigmas, and 72% of people were correct on the question about HIV prevention methods. Since these correct response rates are all close to 75%, it can be assumed that most people aged 18-22 living in Bangkok have a general education of HIV.

Finding 5: Awareness of HIV self-testing is low

The survey results show that many people are unaware of HIVST and where to find HIVST kits. Only 33.1% of people have heard of HIVST kits before completing the survey, and only 20.6% know where to buy one. The 12.5% difference between those aware of HIVST kits and those who know where to find them could indicate a lack of practical knowledge about HIVST.

The survey results also show that less than half of the people who have heard of HIVST know where to buy an HIVST kit. When looking at the 33.1% of people who know what HIVST is, only 45.1% of them know how to find one. This result means that only about 14.9% of those who have heard of HIVST can find and use an HIVST kit if necessary. Additionally, this means that about 5.7% of respondents said they have not heard of HIVST but know where to find a kit. This disconnect likely points to a lack of knowledge and awareness around HIVST.

Four percent of those surveyed have used an HIVST kit. A potential cause of this is because HIV and HIVST are heavily stigmatized both in general and in medical professional fields. Less than 50% of healthcare professionals are willing to distribute HIVST kits (Jordão et al., 2022).

Without the help of healthcare professionals in distributing HIVST kits, the awareness and usage rates will stay low.

Awareness of HIVST and knowledge of where to find an HIVST kit are very low. This data indicates a critical need to increase awareness and could suggest that awareness is one of the most significant factors in increasing HIVST usage.

Finding 6. Many people believe that they are not at risk of HIV

Out of the population surveyed, 89.65% claimed to be at little risk or less of contracting HIV, and 78.47% claimed to be at no risk. The average perceived risk was only 1.67 out of 10. Whether people are actually at little risk of HIV or not, the fact that people are estimating their risk to be so low could be an indicator of a lack of concern toward HIV. With perceived risk being this low, many people will not take action to protect themselves or try to be aware of their status.

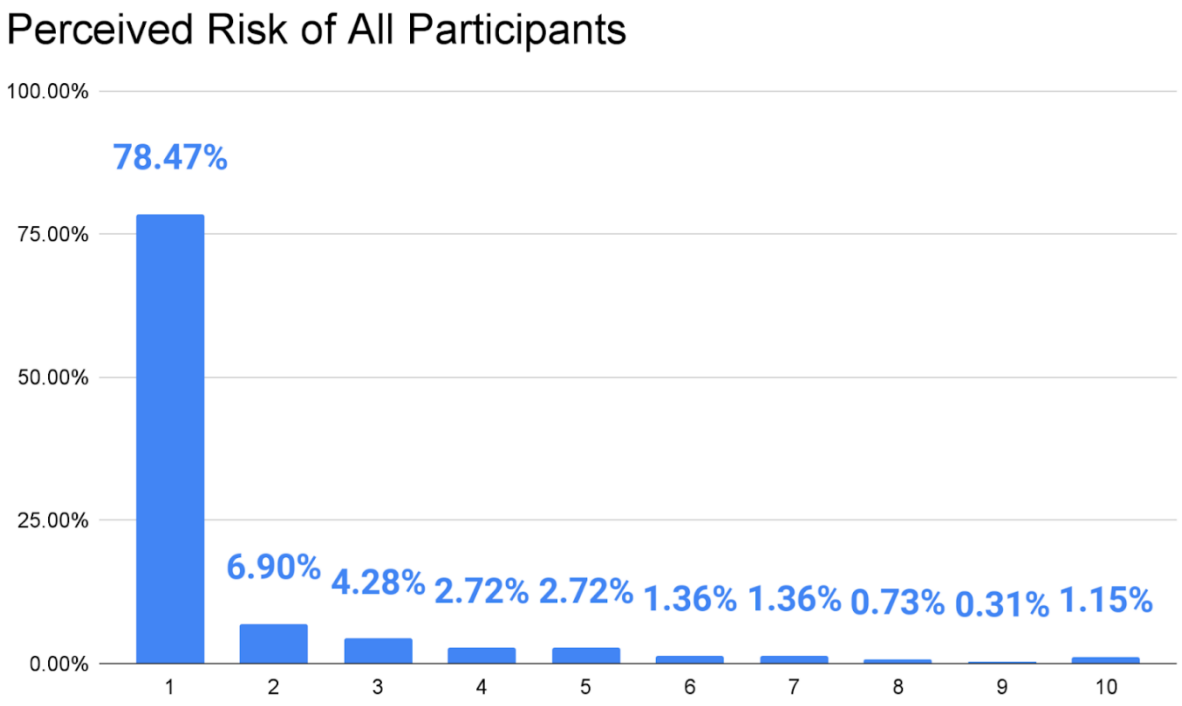

Figure 4. A graph showing the total percentage of respondents' perceived risk of contracting HIV, rated from 1-10, with 1 being no risk, and 10 being maximum risk.

When looking only at those who have used an HIVST kit, the average perceived risk is still low, but not as low as the general population of people aged 18-22. Compared to the 78% of people rating themselves at a 1, only 54% rated themselves at a 1 out of 10. While the average perceived risk for the general population was 1.6, the average perceived risk for people who have used HIVST kits is 3. This result could indicate a correlation between perceived risk and HIVST usage, but further research is needed to confirm this.

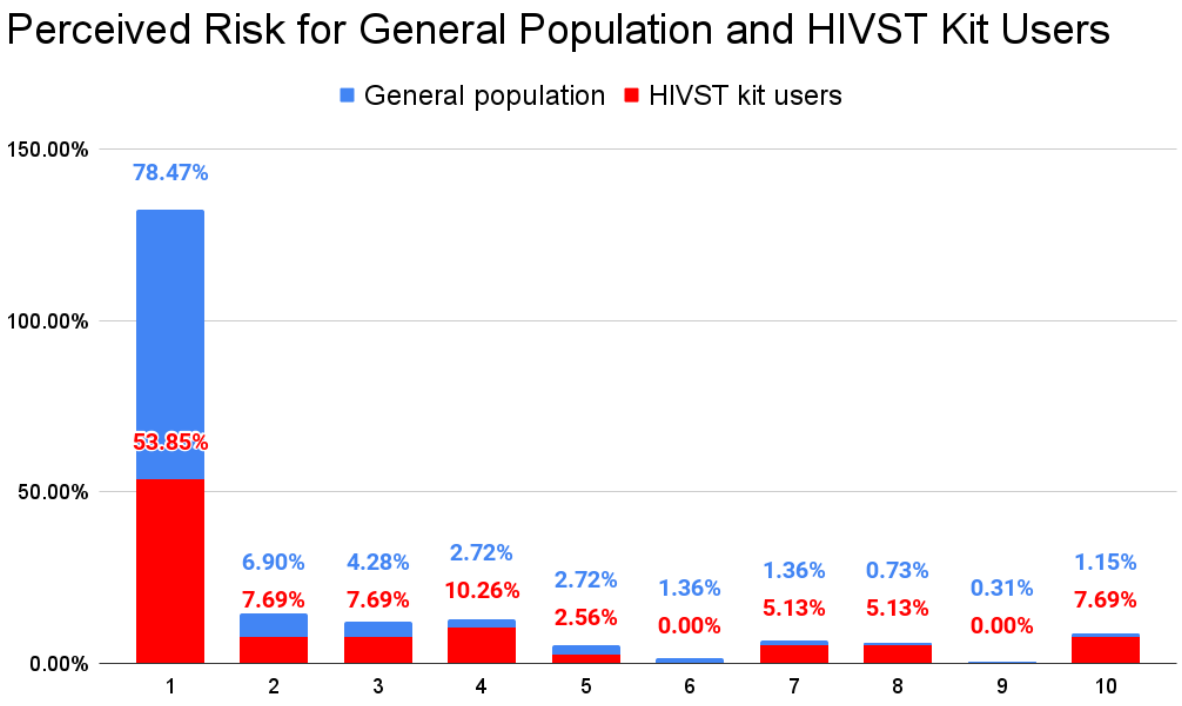

Figure 5. Graph showing perceived risk for both the general population and HIVST kit users.

Many people estimate their risk of HIV as being very low, which could affect people's interest in knowing their status. Additionally, the data indicates a connection between perceived risk and HIVST usage, but due to the small sample size and lack of repeated testing, this possible correlation needs more research.

4.2. Limitations

4.2.1. Limitations of the survey

There were multiple limitations of the survey that prevented the generalizing of the data and drawing conclusions. First, the age data was limited by the setup of the age ranges. Only the age ranges of "under 18 years old", "18 to 22 years old", and "over 22 years old" were included.

However, since participants did not identify their specific ages, conclusions could not be drawn about the specific ages. The small sample size also limits the data. Nine hundred fifty-eight responses were received, so conclusions cannot be drawn for the general population. Conclusions about the general topics of HIV cannot be drawn due to the small number of questions and lack of cohesion between them. The questions were not structured meaningfully, which prevented the determination of the education level of the sample population.

Another major limitation of the survey was the distribution itself. It was challenging to only get responses from a specific target population, such as Chulalongkorn undergraduate students or people aged 18 to 22. This issue was worked around by adding the demographic section to the survey. While there were many responses from different ages and universities, they could be sorted to provide an accurate data analysis. However, it is important to note that a significant limitation of the survey was the lack of complete control over who answered.

While confusing questions and potential sampling bias limited the survey, every attempt was made to prevent this by optimizing the questions and asking about demographics to understand the sample.

4.2.2. Limitations of Table-Sitting

There were multiple limitations of the table-sitting events that prevented the drawing of conclusions about the effectiveness of the methods. First, the lack of measurables limited the data analysis during the table-sitting events. Due to the volume of participants, the number of people who visited the table during each 30-minute period could not be identified. There was no measurement of engagement or interaction with the table, so the aspect of table-sitting the target population found the most engaging could not be identified. The most effective incentive to draw

people in was also unable to be identified, as participants were not asked about this. Neither the number of pamphlets given out at Siam Square nor the prizes at the Valentine's Day Market were counted during each 30-minute time period. Due to limited timing, the table-sitting event could not be reproduced with different times, locations, and incentives. This limitation prevented the team from concluding what time and location were most effective at gathering the target populations and, thus, unable to recommend specific locations and times for the event.

Chapter 5. Conclusion and Recommendations

As presented in the findings, we have found that the majority of the target population is unaware of HIVST and believes they are at minimal risk. Because of this, **we believe the lack of HIVST usage in the target population may be connected to a lack of awareness and low perceived risk**. It is also important to note that based on the findings, the generally high level of HIV knowledge suggests that lack of HIVST usage is not necessarily tied to misconceptions. This chapter presents the team's recommendations to the IHRI to increase awareness of HIVST.

5.1. Recommendations for Addressing Lack of Awareness of HIVST

Our first significant finding is that HIVST usage may be connected to a lack of awareness of HIVST kits. As stated in our results, about 70% of our sample did not know about HIVST, and 20% did not know where to find a kit.

To increase awareness of HIVST for our target population, we recommend enlisting the help of an influencer to promote HIVST information. From our experience with team member Natpawin, we found that influencer posts reached the largest audience in a short time period. For example, the post created for our survey reached a total audience of 26,641 viewers over the course of 5 days, along with 1,368 content interactions. Although 430 people completed the survey, the post was able to reach a large audience over a short period of time. This information may be useful for future HIVST campaigns as content promoted through influencer posts has the potential to reach large audience.

We also recommend using "micro-influencers", or influencers with a social media presence between 10,000 and 50,000 followers (Ehlers, 2021). This group of influencers can potentially be more impactful than influencers with a large following. To start, the cost of working with an

influencer increases as their follower count increases, so working with influencers with a large following may be very expensive. Prominent influencers also have limited availability due to their popularity and typically prefer to choose content that aligns with their perceived image (Ehlers, 2021). In comparison, a study investigating the difference between micro-influencers and macro-influencers found that micro-influencers promoting a product gathered more clicks, comments, and likes than macro-influencers (Marques et al., 2021). This study supports the idea that followers of micro-influencers have more trust in the influencer and associate their positive image of them with the promoted item or brand. Micro-influencers are also lower in cost, making them a valuable option to consider when seeking ways to promote awareness of HIVST (Ehlers, 2021). One of the most intriguing aspects of micro-influencers is the ability to reach multiple audiences. With multiple micro-influencers, the IHRI or other organizations can spread awareness of HIVST to the general public through various demographics.

5.2. Recommendations for Addressing Low Perceived Risk

Our second significant finding is that perceived risk among people aged 18 to 22 is low. The average perceived risk of the 955 respondents was 1.6 out of 10. Based on our results, we believe a person with a higher percieved risk might be more interested in knowing their status and being tested. The data also indicates that higher perceived risk may be tied to HIVST usage. While the average from all respondents was 1.6, the average perceived risk for HIVST kit users was 3 out of 10. The low perceived risk may be a cause of people not taking steps towards knowing their status, and HIVST usage may also be tied to heightened perceived risk. Therefore, we recommend education that encourages people to be aware of the risks of HIV.

We also recommend investigating the link between HIVST usage and perceived risk. The initial data indicates a correlation between heightened perceived risk and HIVST usage, but we cannot make any definitive conclusions due to our small sample size of 39 respondents. To investigate this link, we recommend launching another similar survey with a larger sample size to get more HIVST users. With a larger sample of HIVST users, the data gathered will be much more accurate and usable. We also recommend increasing the perceived risk from 1-10 to 0-10 to gather more specific data. Additionally, asking people why they chose to use an HIVST kit could yield interesting data. If there is a positive correlation between perceived risk and HIVST kit usage, then education on HIV risk would likely have a positive effect on increasing HIVST usage.

Increasing education on the risks of HIV to heighten perceived risk and investigate the link between perceived risk and HIVST kit usage will likely increase the number of people knowing their status and taking steps to prevent HIV. It will also hopefully give new directions for future projects. We recommend that education focuses on informing people in the target population that engaging in risk-taking behaviors, such as unprotected sex or IV drug use, will always put them at risk of contracting HIV and that the lack of usage of preventative measures, such as PrEP or PEP can only increase their risk of contracting HIV.

5.3. Recommendations for Addressing HIV Misconceptions

The misconceptions quiz indicates that attitudes toward HIV and knowledge of HIV are not as big of an issue as awareness or perceived risk. On the worst-scoring question, 72% of people were still correct. Contrary to awareness, where only 33% knew about HIVST, misconceptions and stigmas around HIV seem to be secondary. Therefore, we recommend prioritizing spreading awareness and educating on perceived risk, as these areas are most in need.

5.4. Recommendations for Researching Unknown Variables

Out of 958 people aged 18-22 surveyed, only five answered that they had a perceived risk between 8 and 10, knew of HIVST and where to purchase one, and did not use an HIVST kit. We recommend a deeper investigation into this population, as they may be invaluable in answering the question: "Why do people with a high self-perceived risk and know of HIVST not self-test?". Due to this population's small size, the project team recommends distributing the survey to a large number of people to reach as many people in this population as possible. Based on the data collected, 19,160 people aged 18-22 living in Bangkok would need to take the survey to collect data from 100 people in this population. It is possible that interviewing this population can provide the identity of the unknown variable that stops people who are aware of HIVST and at self-perceived high risk from testing. Collecting more demographic information may also be useful with this population, as well as asking those interviewed about risk-taking behaviors they engage in. The existence of this tiny population suggests that the combination of awareness of HIVST and high self-perceived risk is not enough to encourage people to use an HIVST kit.

First, we recommend investigating which educational methods are the most effective at educating the target population. At the request of the IHRI, we conducted an in-person event to observe certain aspects to improve on. For future in-person events, we recommend adding an analysis method asking people what attracted them to the table. At the table, we had multiple incentives and posters that may have attracted people, but we could not determine what attracted people most to the table. For future in-person events, we suggest having a survey for participants to complete to see what they found most engaging about the event. We also recommend investigating which platform is the most successful at distributing HIVST information. From the project, we found that using an influencer on social media allowed a larger audience to see the

initial survey code. However, we could not conclude from the data whether this was an effective method compared to an in-person event. For future research, we suggest investigating which social media platform is the most effective at distributing HIVST information to the target population. We also recommend investigating whether online or in-person content is more effective at reaching the target audience.

5.5. Future Assessment of HIV Attitudes

Based on the research conducted from this project, we developed new questions about how certain attitudes toward HIV may affect HIVST usage. To further investigate HIVST usage, we propose the following research questions.

First, we recommend researching if stigma affects HIVST usage. In the background research, we identified stigma as one of the potential barriers to HIVST usage. However, we could not investigate this potential barrier due to time constraints.

We also recommend future research to investigate the link between perceived risk and stigma. As seen in the findings, the target population identified themselves to be at minimal risk for HIV. To further investigate this finding, we suggest assessing how stigma against HIV may affect people's perceived risk. We also suggest future research in the perception of at-risk behaviors and perceived risk. While we identified that the majority of the target population viewed themselves as low risk, we did not have participants identify at-risk behaviors that they engage in. This data may help researchers understand how the general public views at-risk behaviors and if cognitive dissonance is related to the behaviors. We would also like to see how HIV knowledge affects perceived risk. While the majority of the target population was knowledgeable about HIV

education, we were unable to conclude how their knowledge affected their perceived risk. We believe this is a fascinating research topic and hope it is investigated in the future.

5.6. Conclusion

HIV self-testing is crucial in detecting and preventing the spread of HIV, as detection of HIV infection leads to the best treatment outcomes (AlderHealth, 2017). Nonetheless, a significant proportion of people aged 18-22 living in Bangkok remain unaware of HIVST or do not consider it a viable option. There are also significant stigmas regarding HIV still present in Thai society, and many people hold misconceptions that are harmful to those living with the virus. The project's sponsor, the Institute of HIV Research and Innovation (IHRI), wanted us to address these challenges by gaining more understanding of HIV and HIVST, determining attitudes and awareness of HIV and HIVST, and designing a project to increase the awareness and acceptance of HIVST for the target population.

There is still only limited research data regarding HIV among people aged 18-22 living in Bangkok, so the continuation of this research is recommended. We are optimistic about the potential for refinement of the methods to result in more engagement from the target population. Following this project's recommendations, the team hopes that this research can be continued so that more people can be made aware of HIV and HIVST and HIVST's importance.

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Appendix A - Interview transcript with Dr. Jakkrapatara Boonruang (Dr. Fair)

Daniel: Are you comfortable with us using your name?

Dr. Fair: Yes.

Daniel: Thank you so much. Our first main question is what do you feel general attitudes are surrounding HIV and those infected with HIV?

Dr. Fair: In terms of me as a person, not a doctor, I don't think there is any difference between people living with HIV or not living with HIV. Both in terms of a person and sexually as well. I am quite informed with U=U and I have equipped myself with tools to protect myself from the disease as well. So, in terms of sexually, I am okay with having sex with people living with HIV while they are in the state of U=U. If they are not in the state of U=U, it is going to be fine as well because I'm on PrEP anyways, so right, there is no difference between people living with HIV or not.

Daniel: So, for the general population of Bangkok in the area that the clinic serves. How do you feel that most people view people with HIV and HIV itself?

Dr. Fair: Not really positive on that term. Most of the time, people come in with stigma, including self stigma as well. In terms of people living with HIV, they also have problems accepting themselves or seeing themselves as equal beings with people who are not living with HIV, so that is quite heartbreaking. For people who are not living with HIV, I don't think they understand very well about the disease and U=U, not even PreP. Thai people are not really informed by education so they need to find that education elsewhere. For example, from TV series or other types of media, but not in school. You know, I'm a doctor, graduating from one of the best medical schools as

well, but I'm not informed about it at all. I have never learned about anal sex or other types of sex that is going on in people's life. About HIV, I only take half of the perspective, in terms of the disease, how to treat, how to screen, but not really about stigma and discrimination at all. This was all I learned [at the Pribta clinic], not in school.

Daniel: Very interesting. What do you feel about attitudes and awareness or how do people feel about HIVST and testing?

Dr. Fair: They feel reluctant for HIVST, including doctors as well. Let's separate non-professional and professional personale. For the non-healthcare professional, they don't even know that there is an HIVST. Even if they heard about blood-based or saliva-based HIVST, they still feel reluctant to get tested because it is quite hard to do it by themselves. For background, in Thailand, we have only 2 commercial self tests which right now are listed by FDA. One is oral-based and one is blood-based. The blood-based one is very hard to use. It's so complicated. For oral-based, we can't even find it here at our clinic. So it is not widespread in Thai non-professional people. A lot of professional healthcare personale, I had a chance to talk to my professor, who wrote the guidelines on HIV for the country. She doesn't really believe in HIVST. She thinks that it is not accurate enough for a screening tool. The window period of HIVST is too long to indicate whether that person can receive PrEP or is safe or not. But we here (at Pribta and Tangerine clinic), look at it in a different perspective. We see that HIVST is actually the tool that gives people power to get tested by themselves so we are increasing the number of people who get screened. Also, the activity of the self test does not mean that they are positive, they have to come in (to get tested) anyways. So helping the widespread of HIVST would actually help to bring people into the system more. Not, you know, push them out because they have been screened already. I don't think that that's

the case. So, in terms of healthcare professionals, they do not really understand the benefit of HIVST.

Daniel: Moving on to this clinic and your role as a counselor. Would you be able to briefly describe your role at this clinic?

Dr. Fair: Yes. I'm a doctor here. I'm a research physician and I'm actually a general practitioner. I'm not a specialist in any kind of field in terms of HIV or infectious diseases. I have been working here for 2 years and what I mainly do is give counseling and consultations during HIV screening, HIV treatment as well, HIV prevention. I also prescribed PrEP, PeP, all of those things. I also give sexual health consultation because I have a diploma in sexology as well. Moreover, here we offer hormonal treatment and monitoring for transgender population so I'm the one prescribing hormone treatments to them. I also dabble my toes in the research. So I do HPTN 083 which is the research clinical trial for long-acting injectable PrEP. Also, STI screening, treatment, and research as well. All over the place.

Daniel: How is the research going? Which state are you in?

Dr. Fair: You mean the HPTN 083 right? So it is actually international wide so it has no problem with fundings. It's giving very good yield so the product has been listed by FDA in the U.S. already, to be used in U.S. citizens. [In Thailand], it's going to be around 2 more years before it comes in, but there are a lot of obstacles in terms of preventing implementation because it is quite expensive, and you need to be injected every 7-8 weeks.

Daniel: Do you have an estimate of how expensive it is?

Dr. Fair: The estimated price from the U.S. is about 100,000 baht per injection and you need to do it every 7-8 weeks so 6 injections per year. That's 600,000 baht per year. This is an estimated price from the U.S., so it should be cheaper once it comes into a lower income country.

Dissarin: What does it call again?

Dr. Fair: CAB LA. It's called cabotegravir long-acting.

Daniel: So how would you follow up when somebody is tested positive?

Dr. Fair: Great question. You do know about the background in terms of HIV treatment already right? Most of the time the Thai government or hospitals or elsewhere, they follow rapid ARV initiation by the WHO which is absolute already. But, the aim of rapid ARV initiation is to start ARV treatment after 7 days once they have been diagnosed. Now, moving forward to the same-day ART, so once you are diagnosed with HIV, you need to start ARV under 24 hours. So that is what we do here, we usually are able to give out ARV treatment in less than 6 hours and you would be done already.

Daniel: That is impressive.

Dr. Fair: Yeah, I also think so too. It's a model that has not been adopted nationwide. I don't know why either. There are a lot of obstacles but here (Pribta and Tangerine clinic), not really. And after two weeks of ARV initiation, we do telehealth consultations. I talked face-to-face with them using the application "Line". Just to see if there are any side effects or problems. Right then, I would be able to refer them to the places that they can get treated for free and if they chose to pay the bills

and stay here with us, that's extremely fine. I do follow ups every 3-6 months for the first 2 years and after that it would be an annual check up.

Daniel: So then, what are some of the common myths about HIV or HIVST that you hear specifically from college aged students who are 18-22?

Dr. Fair: That's the crowd where I do not interact with much. Because here it is fee based, meaning that you have to pay a bit, but still have to pay. So it is mostly blue collared and white collared people and not really you guys (college aged students). But, I have given a lecture in Chulalongkorn before. They didn't know that there was a self test available already. Some people do and most of them buy from online shops like Shopee and Lazada which sometimes are not Thai FDA approved. So the result can be quite unreliable but still, I believe it is better than nothing.

Daniel: A little additional question off of that. How often would you recommend people who are sexually active test themselves for HIV? After exposure, of course.

Dr. Fair: I recommend HIV screening every 3 months if you have normal sexual partners. But if you are in a monogamous relationship or a closed relationship, I would recommend every 6 months. But most of the time I would recommend around 3 months, either self test or laboratory test.

Daniel: For somebody who might be aware of HIVST but maybe isn't certain that they want to start every 3 or 6 months, do you have people who are hesitant about things like this? What do you say is the best way to reach some people like this?

Dr. Fair: I think the charisma of HIVST is that most of the people who have never been tested before chose to get tested by HIVST because there is a stigma around HIV testing itself. Thailand has been battling with stigma for over sometimes because before there were widespread clinics for sexual clinics, there was only 1 place which was “Anonymous Clinic ". Have you ever been there before? The fact that it is called Anonymous Clinic means that there is some kind of sinister thing about it, right? So people get scared even with the name already. And if you have ever been there, it has never changed for over 20 years. The picture for Thai people is that HIV testing is quite scary and they have not made things better with their facility or names. With that in mind, people are so scared to get tested anywhere. So, what we have done, we have done HIVST online for people, and we found out that our client is someone who has never been tested before. Most of them always used anonymous names or pictures and never disclosed their real information. Sometimes when they get the test kit, they are supposed to send back results but they just go on and disappear. So I think we are reaching into a hidden population here, like people who are at risk but too scared to come out to the clinic. I think we are reaching somewhere, I don’t know where but we are reaching somewhere we have never reached before because I don’t know them, we don’t know them but at least they got screen already. That’s a great thing about HIVST.

Daniel: Moving on to healthcare and treatment questions. Why would you say early detection of HIV is important?

Dr. Fair: Because of the research itself, for example, rapid ARV initiation which should be started in 7 days compared to same-day ART, there has been a significant shift in terms of viral suppression of people who start on the same day different from people starting in 7 days. Before we came here, we were with the Anonymous Clinic, and there we found out that people who start

same-day ART are actually 4 times more likely to start ARV because people sometimes got scared when they are diagnosed. You know you got infected already but you need time to process and sometimes that takes a long time so they don't want to start the treatment. They are afraid of the side effects because they are feeling fine now since HIV doesn't give you anything at first. "I'm fine now, why would I have to take medicines for the rest of my life" this doesn't feel logical to them so they disappear. What we do is same-day ART where they were being pushed to be taking pills on that day and once they started the treatment, they wouldn't dare to stop. Because when you start it, you don't want to stop anymore, there is too much risk for you to stop. That's why it is better to start earlier than later. Moreover, if they are talking about extremely early treatment, they might benefit in the future. Here, we found people infected with HIV but their anti-HIV is still negative meaning that their body does not even know what HIV is because they didn't produce anti-HIV which is an antibody but they have HIV there already. So when they are tested for anti-HIV, it will still be negative but they have to keep on the treatment for the rest of their lives just to keep their status. In the future, if we are talking about the cure for HIV, those people with negative anti-HIV, will be the first priority people to be able to be included in the clinical trials. They can be exposed to the cure much faster than the people with anti-HIV positive. So that is the better side, that they are giving themselves a chance to get closer to the cure.

Daniel: How are IHRI services different from other hospitals or clinics?

Dr. Fair: Here, as you can see, we are open to kinds of genders and identities. If you walk in here, you will see lots of inclusivity. We have trans women, trans men, asexual people, and queer. I would say this is the most diverse place you could find in Thailand. We have no dress code and it is more welcoming for people who come in since they don't need to fit in or pretend to be a cis

gender. Moreover, all of us have been trained on gender sensitivity like how to call a person and using different kinds of pronouns, how to talk to people living with HIV without making them feel excluded. The services here are also fast, for example, viral load in HIV. If you were in a government hospital, it would take around 1-2 weeks to get the result but here, we only take 2 hours. Including chlamydia and gonorrhea testing as well. Most of the time in government hospitals, they only do Gram stains but here we do not, we use chlamydia and gonorrhea NAATs testing which is to look out for their genetic materials in the urine so you don't have to get naked in front of the doctor. It is not free though, but the price is very low because we have promotional prices all the time. Usually the testing cost 3,000 baht but here it only costs 500 baht.

Daniel: Wow. I guess we have talked about some of the barriers of traditional HIVST and stigma about not being anonymous. What would you say are some of the barriers that traditional HIV testing has?

Dr. Fair: The testing is not easy to find. Actually it is easy but there are some barriers to get tested. If you are a Thai citizen, you can get tested for HIV for free in the hospital you are listed to. But it is hard to go because first, you have to wait in the OPD with a lot of people and that would take a long time just for you to get blood tested. Second thing is if you are tested positive, you will be listed into medical records. In the suburban area, people know each other, like everyone in the hospital knows each other, meaning that if you tested positive for HIV, it is quite hard to keep it a secret since the nurse knows your family. I know that the medical records should be kept secret but sometimes it is not really the case. That is why people are afraid to get tested in their area. I have people come all the way from Chaing Mai just to get tested here because they don't want people in their hometown to know. That goes to sexworkers as well. If you are positive for

something, for example syphilis, in that area, you will be banned from being a sex worker there so you have to find another place to get tested. Another thing is just stigma like “if I get HIV, will I die”, or “if I have AIDS, will I be fired from my job”, things like that.

Daniel: What are some of the benefits and barriers to HIVST?

Dr. Fair: HIVST is actually not listed in HIV guidelines. It means that they are not included in national health security officers so they cannot get it for free and it’s not cheap. It’s around 500-700 baht. For a self-test, you need to be quite privileged to be able to get tested. Secondly, it is quite hard to find, you can’t find it in local pharmacies. You can find it online or at our clinic. Some test kits online are not FDA approved so the test is not reliable.

Daniel: You offered HIVST here at the IHRI right?

Dr. Fair: Yes, we also do packages for people who do HIVST with PrEP. In Thailand guidelines, they don’t allow doctors to prescribe PrEP for people using HIVST, not yet, but the WHO did already. So we are following WHO guidelines not Thai guidelines. What we can do is that if they get tested online, or live far away, we will send the HIVST and they will send the result back. If they are non reactive, we can send them PrEP so they don’t have to come here at all. If they come in here and they know that they won’t be able to make it to the next follow up, they can buy the self test for the next follow up and can come in afterward.

Dissarin: Do you know why HIVST is not listed in HIV guidelines?

Dr. Fair: Doctors are not very updated so there is a lot of stigma in the medical world in Thailand. I have talked to my professors and she does not even encourage people to use PrEP because she

believes that people would get more promiscuous. Including HIVST, she thinks that it is not standardized, even though it is listed in WHO. That is why it is not listed yet because the guideline hasn't been updated.

Daniel: That is the end of our official list of questions but I have a few more. Our priority is to make people aware of HIVST. Right now we are looking at different ways of advertising. I was wondering if you have any thoughts at all about ways to make people aware? Like what's going to resonate with people.

Dr. Fair: A huge group of people who would want HIVST is staying in Twitter or Grindr. People from Swing, they advertised themselves in these apps not in Facebook or Instagram. Those are platforms you can go for, like darker sites or porn sites or dating apps. Messages that people want to know are price and window period. Even doctors need to know that as well. Also, explain to them that it is quite easy to use.

Nora: To expand on that a little bit, we are going to aim our focus on campus to encourage self testing for students. We are also looking to do something in person. Our goal is to encourage, especially college aged students to let them know that it is an option and that they should get tested even though they are not a high risk group.

Dr. Fair: I think the most important thing for you to say on campus is the price because most of them are students who don't have stable income so if you were to promote HIVST, you can just get some people to try and get tested to see that it is easy to do. You can give out for free. Then afterward, give information of where to buy one. Or just do the poster that you can receive it here by doing this and that. You can state something about the risk. People usually think that they don't

have risk at all. People don't know the efficacy of condom use, they think that if they use condom every time, they will not get HIV. But actually the efficacy of condoms is 60-80% so it is not 100%. People are still 20% at risk of HIV even though they used condoms every time.

Nora: I want to ask about the study that is done here about perceived risk. Do you think you can quickly talk about it?

Dr. Fair: I'm not the one conducting that but let me think. It's in transgender population though, it is not from the general population. What we did is handed out surveys saying what do you think about your risk, if you have any risk, moderate risk, or high risk. Then we have them tested for HIV and STIs as well as syphilis and gonorrhea. High percentage of people think that they are not at risk but they are tested positive for some disease. Which means that people are at risk and they do not perceive themselves as having risk so we need to tackle on why they think so. People don't understand what having risk is. Risk is contacting with another person meaning that sex, period, whether you use condoms or not.

Nora: It has been really great to interview you. It is extremely helpful. Thank you so much.

Appendix B - Interview transcript with Prapawarin Sittisatid (Palm)

Natpawin: Good afternoon Khun Palm and thank you for giving us the interview, I am Natpawin and here's Arena and also Josh.

Palm: Yes, nice to meet you all.

Natpawin: Let's start with the first question, What have you seen HIV/HIVST on social media?

Palm: Okay, to be honest, nowadays, everyone is using social media so we have to immerse ourselves in it too. We did tons of advertisements and promotions online now for both Tangerine and Pribta. Tangerine uses various platforms in social media such as Facebook, Twitter and Tiktok, these are three main platforms. Each platform also has different categories of users. When we were promoting HIV when we were promoting online, we received various types of questions, most of which were about their knowledge, large group of people barely know about HIV and HIVST, like, NOT AT ALL. This is one of the barriers for us as well which is happening these days. Most of them are curious about what it(HIVST) is, how to use it, and if using it so what's next. There are questions like these in those three platforms and each platform are different. Facebook users have more background knowledge (I am saying it without stigmas and discriminations), quite understanding about HIV and including HIVST (also how to use it), no stigma and no discrimination. More kids and teenagers are using this platform and they don't have background knowledge at all. Example case: a 13-year-old inboxed us asking if they can have the testing kit so we asked why they wanted the testing kit so they explained, it was because the test kit is free, they do not even know what it is. Our key question is "What if the person who gets the testing kit from us has the reactive result", no matter what's the result but after we hand out the testing kit,

we must make sure that they are ready. Most of them are sex workers so it will be more complicated. They ask for HIVST quite often, some use HIVST to check their HIV status before working. To sum up, the thoughts are quite varied in each platform but they have similar main questions, how to use, after using, and why we have to use HIVST.

Natpawin: Are there any negative thoughts about HIVST?

Palm: Some people think that HIVST is not like laboratory HIV testing or the first generation. HIVST is mainly for the screening process, it can give active and reactive results NOT positive and negative results. Some users used these results in the wrong direction. About the stigmas. First, "it is hard to use" which leads back to background knowledge. It might be easy for me, easy for us, but not for them. Then, when they got the invalid result, they panicked and asked if it was a positive result or not. The 13-year-old cried a lot when receiving the invalid result even though they had never had sex before.

Natpawin: Thank you so much for you answers, and our next question is What are the general attitudes surrounding HIV and those infected online?

Palm: Okay, so it's the question about thoughts towards people living with HIV on social media right?

Natpawin: Yes.

Palm: Education about HIV is quite accessible for the general public, it is better when compared with the past. People quite understand that HIV is not that easy to get infected, people living with HIV can not just touch someone and then get infected, using the same silverware cannot spread

HIV, etc. There is knowledge development and when there is development and education, perspectives from the public population toward HIV is changing. But in the end, not EVERYONE can access this information. There are still groups of people that think that HIV is easily transmitted, using the same silverware equal to HIV, holding hands with a little small wound equal to HIV, this mindset still exists which leads back to discrimination and stigma towards people living with HIV. This is the endless cycle which right now we are trying to help people to access the information about HIV more and more because if they cannot access this knowledge, they will never understand and it could help with changing their perspective and finally people living with HIV can be accepted in society. The youngest person with HIV that I have experience with is a 17 years old who is a transgender woman. She used to hide that she has HIV but now she feels more open to her family. The good thing is that nowadays people are not pointing right at people with HIV and blaming them anymore. Thanks to organizations that are working on protection and prevention which could help with negative thoughts.

Arena: May I ask you are very quick question, so when you mentioned that the treatments and medications are quite easier to access and people understand basic knowledge, is there any chance that people might think that "Oh HIV can be treated now, I can take medicines so I do not have to test my status" is it make sense to you?

Palm: Yes, I understand that. So if you are asking whether this is a real thing or not, yes it could be but it is not mainstream. For the first quarter October 2022 to January 2023, we sent out 65 HIVST to transgender women via Tangerine clinic. Quick overview, Pribta and Tangerine are separated due to the different target groups, Pribta is for MSM which is men having sex with men, and also straight males and female or in short it is the clinic for every gender. Tangerine is focusing

on transgender mainly. So from October to January we hand out 65 HIVST to transgender women and this is a huge number for self-testing and there were 3 reactive results which is a high percentage too at the first testing and all of them tested at the lab again and they got positive results. In present date, there are less number of positive results even for walk-in patients because of PrEP and PEP which we expand them to people living with HIV quite well. And we give HIVST to people who are PrEP and PEP initiated too and cannot visit the clinic. Let's get back to the question, so it is not as mainstream as I said. HIV testing is still necessary, Tangerine has about 5,000 trans women patients and everyone already took that test. They understand about their risk even if it is not bothering them at all but still the society judged them already. 49% of HIV infected are transgender women worldwide.

Arena: Thank you, that was the question that advisors asked us if there is a connection or not.

Palm: It's not that linked, when people can access the information, it could help people to access HIV testing more and more. And it's not just laboratory testing but HIVST too. The main point is that everyone should know their status.

Natpawin: Is there any doubt about HIVST efficiency on social media?

Palm: Sadly yes. Some of them just want the HIVST because Tangerine clinic provides all healthcare services for free including sending HIVST to their house for free to expand accessibility for HIV testing and also for screening too. Some of them just want to know, some of them just ask for the testing kit and not even use it, some of them just use it but not report us back but they posted on social media. So that is why people do not understand its value which is still the barrier for us

too, someone just got testing and then disappeared. It depends on each particular person too, like what is their aim for asking the HIVST, this is what human beings are.

Natpawin: Thank you, so the next question, for the walk-in patients for their first HIV testing, how do they feel? Are there any negative feelings?

Palm: Okay so I will give you a brief review of walk-in patients for the Tangerine side. Tangerine is the first clinic in Asia that provides service from transgenders for transgenders so it is more friendly for patients. The negative feeling is decreasing, it gives the sister-to-sister conversation a more friendly kind of vibe, we are using specific vocabulary that only transgenders know as well. But for the first visit, when I asked why you just came, most of them answer that they were not brave enough to walk into the clinic, they thought it will be the same as other public health care clinics that provide by the government which is really uncomfortable for them, the over-power feeling from staffs. Tangerine provides services by "Power Sharing", everyone is equalized, staff is not at a higher level than patients, and all decisions depend on the patients, our job is to offer services for them which is power sharing from both staff and patients, there is no obvious negative feeling here. The first thought might be "Oh I have to pay for this", most of the feelings are about expense, not attitude.

Natpawin: So for the walk-in patients, Tangerine clinic can remove negative feelings by power sharing.

Palm: Yes, power sharing is our main method and also patient-centered care as well. Tangerine staff has been tutored and trained about this before providing the service. And I think the main key point is that we provide service by transgender to transgender so we understand each other, when

I was a newbie in this clinic, I do not understand much of what they were talking about and I guess that staff from Pribta will not understand our conversations too. This is our strength in providing services by transgenders. This is one of the reasons that Tangerine is also an academy that educates staff in other clinics too, for example, the CBO or Community Based Organization one of those is SWING which provides services for sex workers, and we are also advising CBO outside Thailand too.

Arena: Thank you

Natpawin: And for the next question, what is the obstacle for men who are transwomen to get HIV testing at the clinic and do you think HIVST can help with that problem or not?

Palm: Obstacle for transwomen?

Natpawin: Yes, do you think HIVST can remove this barrier?

Palm: We do not have such a barrier for trans women in the present time, it's not just barriers for trans women, it is for everyone. IHRI expands accessibility for treatment quite well, we are the support center for CBO which is chained with us, so we have fewer barriers even for other provinces not just Bangkok. In the past, we had to go to private hospitals or clinics only, which is so expensive. For example, the specialized private clinic about the sexual health care in Bangkok provides HIV testing for 2,500 Baht which is way too expensive, but for Tangerine clinic, we provide it for free and for other CBO too. And the trend for both trans women who finish Gender Affirmation Surgery and those who are not, we are ready to accept everyone when they just say "I am transgender" without any condition or bias at all.

Arena: So the point is that for Tangerine, you have to treat everyone equally

Palm: Yes, this is sexual equality which back to that point that there is no barrier for us at all.

Natpawin: We heard from Khun Kung(Krittaporn Termvanich**)** that IHRI which in this case means Tangerine clinic uses hormone therapy as the pathway for HIV testing and HIVST, could you please explain more about this point?

Arena: Khun Kung said that people do care more about beauty than their own healthcare.

Palm: Oh, okay. At first, Tangerine's main setting was expanding accessibility for HIV and STDs but transgender will never walk into the clinic and ask for HIV testing for sure. Out of ten, there might be just one person who needs HIV testing, nine of them are for other aims. So we are using gender-affirming hormone therapy to attract them because we have to draw their blood for hormone checking anyway, so we ask for their consent about this and try to inform them that they must be aware of their HIV or other STDs status too. This is one of the interesting tactics for Tangerine counselors, hitting two birds with one stone. And 100% of patients from Tangerine already took HIV testing, most importantly, everyone must know their status and concern about it.

Natpawin: Do you know about the percentage of 18-22 years old out of all patients?

Palm: I'm not really sure about numbers, Khun Kung might be able to give you some statistical data. It is because Tangerine and Pribta and also IHRI are research-based sharing resources which means that we have to keep record of all data. I am pretty sure that we have a big number

of patients in this age range (teenagers) but there is no specific generation that pops out from all ranges.

Natpawin: For your role, “The Tangerine Care and Counseling Officer”, are there any differences from the Pribta’s counselors?

Palm: We are providing service for everyone, every generation, every gender, and every sexual identity. But we have to admit that transgender people have some concerns which are different from others which for someone who might not understand about this might have some bias. Tangerine provides services for transgender mainly but Pribta provides services for everyone. Tangerine can provide almost every service for free because we are a research site. And also, we are providing service for trans women's partners as well because we believe that if the couple, like, if both of them know their own status, it could be better for them.

Natpawin: If a patient has a reactive result from the HIVST, how are you going to deal with their mental health, like, how are you going to support them? What will help them?

Palm: We will help them to get accessibility to the treatment without making them feel bad or isolated or different. When we hand out the HIVST, we always have an online support team that will give the patients some advice about how to use HIVST and the protocol guideline after that for all results outcome. When they understand or at least know about that, they will know what to do next. We are also using HIVST for PrEP initiation and our staff will call to follow up with the patients too for the laboratory testing to confirm their results. What we have to do is not make them panic, that's all.

Natpawin: Are there recommendations for us for raising awareness about HIVST and also about HIV?

Palm: When we were promoting HIVST, there will be some inboxes for sure, like, all the time. But when we are not posting, there is no inbox asking for the HIVST at all because people do not know that they can ask for it for free from our clinics. Most people still think that they have to take the HIV test at hospitals only. Some of them might just message and ask “What is HIVST” and think that “it is way too complicated” and “I will not do it”. Sometimes, we already gave out our HIVST and they message back like “I already watched the “how to use” video but it is too hard” and then sent it back to us. My recommendation is to educate people as much as you can about the HIVST, giving them information, today they might think that they do not need the self-testing kit but tomorrow they might ask for it later.

Appendix C - Interview transcript with Krittaporn Termvanich (Kung)

Arena:What have you seen HIV/HIVST on social media?

Kung: Our primary platform for providing HIV services is through our clinics. We advertise our clinics on the internet, targeting at-risk groups who prefer to access our services online for reasons of privacy. We use Google and Facebook algorithms to reach out to those who are at risk, and our ads are displayed on their screens. For instance, if we want to capture the MSM group, we advertise our clinic on platforms where they are likely to see it. However, for HIV self-testing (HIVST), we do not see much information posted on social media. This may be because there are not many brands that offer HIVST, or because the FDA has restrictions on advertising the product. Although HIVST was legalized in 2019, the first brand was only approved in 2021, and currently, there are only three brands available in the market. Despite these limitations, we remain committed to ensuring that at-risk groups have access to HIV testing and care. We will continue to explore different avenues for reaching out to these groups and providing them with the services they need to stay healthy.

Arena: How do you reach hidden populations online?

Kung: As part of our efforts to reach out to at-risk groups and promote our HIV services, we recognize that many of these individuals are active on social media platforms such as Twitter. However, we understand that much of the conversation that takes place in private groups may contain illegal activities, such as discussions around sex and drugs, which we cannot join. To address this challenge, we plan to leverage micro-influencers on Twitter to help us advertise our services. We believe that the best way to promote our services is by using real users who have

firsthand experience with our clinics and services. By collaborating with micro-influencers who have a following among our target audience, we can reach out to at-risk groups in a more targeted and effective manner. Through this approach, we aim to increase awareness of our HIV services and encourage more individuals to get tested and receive care. We will work closely with our micro-influencer partners to ensure that our messaging is appropriate and resonates with our target audience. By working together, we can make a real difference in the lives of those affected by HIV.

Arena: How have you advertised HIVST or the IHRI online?

Kung: As part of our ongoing efforts to reach at-risk groups and promote our HIV services, we have chosen to use Facebook as our primary platform for advertising. We believe that Facebook is an ideal hub for our advertisements, as it currently does not have any significant limitations or restrictions on the type of content we can post. To help us produce high-quality content that resonates with our target audience, we have engaged the services of various agencies. These agencies are tasked with creating compelling and informative content that promotes our services in a clear and engaging manner. By partnering with these agencies, we aim to reach out to more individuals who may be at risk of HIV and encourage them to seek out testing and care. As part of our initial agreement with this organization, we have agreed to prioritize social media platforms that are most likely to reach hidden online users. We believe that this approach will allow us to connect with individuals who may not have access to traditional healthcare services or who may be hesitant to seek out testing and care in person. Pribta Clinic has not yet advertised on TikTok, we are aware that Tangerine has launched a TikTok advertising that has generated 20 clients. We understand the potential benefits of this platform for marketing purposes and are currently

evaluating the feasibility of incorporating TikTok into our advertising strategy. Moreover; Tiktok is a large platform for teenagers.

Arena: What campaigns have been enacted to encourage HIV self-testing?

Kung: We have been promoting it through social media channels. Our marketing campaign has focused on informing people about how easy and convenient it is to use HIVST. However, we believe that a national campaign would help raise awareness on a larger scale. Moreover, we are seeking support from the government to promote HIVST and ensure its availability to a wider audience. We strongly believe that HIVST can make a significant impact in the fight against HIV/AIDS, and we are committed to providing safe, effective, and affordable testing options to everyone.

Arena: What groups do you target? What groups do you want to target?

Kung: Men who have sex with men (MSM) and transgender women. Our main target group for selling HIVST is individuals aged between 18-35 years old. We recognize that HIV-positive individuals can use our test kits to test their partners who have not yet been infected, which can help prevent the further spread of HIV. Additionally, our target group includes those who do not consistently use condoms or are not on pre-exposure prophylaxis (PrEP) as they may be at higher risk of contracting HIV.

Arena: What surveys, campaign events, etc. has the IHRI done in the past? What parts were successful or unsuccessful?

Kung: Our company has not yet conducted any on-site campaigns for promoting HIV self-testing (HIVST). However, in response to the COVID-19 pandemic, we did launch a campaign for "home isolation" as we recognized that this was not yet widely adopted in Thailand at that time. We understand that hospitals were overcrowded and unable to accommodate everyone, so we felt it necessary to promote the concept of home isolation. Although other nations, such as the UK, had already implemented home isolation, we believed it was important to raise awareness and encourage people to stay home in Thailand.

Natpawin: Our recent plans is to conduct table-sitting activities at several different locations. During these activities, we will have posters with QR codes available for people to scan and obtain more information about HIV self-testing (HIVST). Additionally, we will have staff members present at the tables to provide information to interested individuals. We are also planning to collect information during our table-sitting activities, and we will be conducting a survey as well. This will help us gather feedback from the community and better understand their attitudes and perceptions towards HIVST. Do you have any opinion on this plan?

Kung: Before you can proceed with your planned table-sitting activities at various locations, you need to obtain permission from the relevant authorities. Some locations may have restrictions on promoting anything related to sex, which is why you will need to seek permission beforehand. In the past, we have encountered situations where staff members did not allow us to advertise PrEP and PEP, as they believed it could encourage teenagers walking by to have sex. you have to be mindful of these concerns and ensure that our messaging is appropriate and sensitive to the needs of the community. Additionally, we would like to offer our assistance in setting up the tables by

providing you with photos of our previous table setups. We also have a supply of condoms and HIV self-testing kits that you can use for providing the prize for participants.

Arena: What messaging has been successful in encouraging HIV testing?

Kung: “Everyone can do it so you can do it”, avoid any word that causes fear. Only stated the positives and benefits of getting an HIV test. Influencers can have a significant impact on promoting HIV testing and encouraging people to take care of their health. With their large social media followings, they can help spread the word about the importance of testing and encourage their fans to get tested. While influencers with large followings can reach a broader audience, micro-influencers with a more targeted following can also have a significant impact on promoting HIV testing. Influencers who are members of the LGBTQIA+ community and have a predominantly LGBTQIA+ following can be particularly effective in promoting HIV testing. They can share their own experiences with testing and encourage their followers to prioritize their health and get tested regularly. Moreover, by partnering with influencers who have a strong connection with our target group, we can reach a more engaged audience that is more likely to take action on our messaging.

Appendix D - Interview transcript with Kanchanok Rurkoukos (Icetim)

Dissarin: What are the general attitudes surrounding HIV and those infected?

Icetim: My view?

Dissarin: Yes.

Icetim: I think people still do not understand and are scared. I also believe that people still view that people living with HIV have bad behavior, that is how I think most people believe.

Dissarin: How do attitudes vary among different demographics?

Icetim: Do you mean like gender?

Dissarin: Yes, and also I meant like financial status, age and gender.

Icetim: Do you have any specific range or any?

Dissarin: Just from your perspective.

Icetim: I feel LGBTQ+ are more open to this topic and if talking about age I feel like the new generation are more open about HIV. Income also has an effect on how they view this topic, high income equals high understanding. Also I feel that high income people are more comfortable with testing, to come to the clinic.

Dissarin: What are the attitudes around HIV testing?

Icetim: I think most of the population think that people that took the test are not good people because of having a high risk of HIV. But there are also some population believe that taking HIV tests is normal amongst LGBTQ+.

Dissarin: What are the attitudes towards HIV self-testing?

Icetim: I think that most of the population view that it is doable and most wanted to test in this way because in Thai society people are scared of being judged by the facilitator and many people would be interested in this method of testing.

Dissarin: Can you briefly describe your role as a counselor to Pribta's patients?

Icetim: For giving out HIVST-kit.

Dissarin: Like, what are your roles and what exactly do you do?

Icetim: Being a Counselor, we would give some basic information to almost all services such as testing, prevention or treatment. We would give information about each one and let them choose which method works best for the patients. If medicine is necessary it is going to depend if the patients want it or not. We would contact the doctor and let them give out the medicine.

Dissarin: Meaning that people can come in and ask for advice?

Icetim: Yes.

Dissarin: Like patients do not need to be checked up first before receiving advice?

Icetim: It can go both ways. Because some would come in blank and do not know what to do. So they could ask for recommendations of what they should do first or some already know what they want, for example, taking a test. The advice would be given during that period. Or even some people are very determined to come and take a test without wanting to receive the advice. But our job is to calm them down and give proper information to make sure their understanding is correct.

Dissarin: In your opinion, should patients receive advice before taking a test or taking without getting advice?

Icetim: I think getting recommendation before taking a test would be good but that does not mean that you cannot take a test before getting advice. The thing is that getting advice before taking a test is a process of checking their understanding whether it is correct or not or even whether they should get other treatment or not.

Dissarin: How do you follow up when someone is tested positive?

Icetim: Do you mean to inform them?

Dissarin: I meant like after they tested positive, how would you follow up with them?

Icetim: Do you mean self-testing?

Dissarin: Both self-testing and lab-testing.

Icetim: Here in our lab we have the process of letting them go through treatment and the follow up would be scheduled. For example, every 2 weeks or 6 months. But if using HIVST-kit we would follow up by telehealth like, chat or call.

Dissarin: If they did not get the HIVST-kit from here but tested positive they can still contact the clinic and also talk through chat?

Icetim: We can give advice to general people. There are many people who use self-testing. perhaps bought it from another place, might send us a picture, and we would advise them to come to the clinic and take a lab-test.

Dissarin: What are some of the best ways to reach someone who is hesitant about HIVST?
Icetim: I think the best way is to make it free.

Dissarin: Make it free?

Icetim: Yes, make it free and easy to get it. Like the Covid19 self-testing kit that is being sold commonly. Making it cheap or free and wide spread. So people generalized them, like " It is normal and sell everywhere so it is not weird if I took a test then".

Dissarin: Do you want to continue with healthcare and treatment questions?

Daniel: Yes, what has been talked about so far?

Dissarin: I was mostly talking about the attitude and the stigma and how they follow with the patient and counseling. Counseling before test or test before counseling. She recommend to do the counseling first then do the test because you might have more risk than just HIV.

Daniel: That makes sense.

Dissarin: So that is what she recommends and that is what we have been discussing so far. Do you have any specific questions? Do you want me to continue?

Nora: Yes.

Dissarin: Ok, I will continue. Why is early detection of HIV important?

Icetim: How fast do you know your status meaning how fast you can get the treatment and receive fast treatment help you from having other illnesses (incurrent disease) lower risk of other illnesses. It can protect your partner, your recent partner and your future partner.

Dissarin: What are the protocols for treating those with HIV?

Icetim: The protocols. HIV is being treated like any other long-term chronic disease. Just come in to see a doctor every 6 months or once a year, do the lab test, doctor required and take medication. It is very easy.

Dissarin: How are your services different from other hospitals offering HIV treatment?

Icetim: The difference between this clinic and a general hospital is we spend more time with the patient because we don't have lots of patients per day so our doctor can spend more time with them, so when we can spend more time we have the time to discuss other things other than just treatment. We can discuss about living style, their partner, their mental health not just focusing on the treatment and because treatment here in our clinic patients have to pay by themselves and have to do the self pay. We can provide more medication than government hospitals do. So some of the Thai government hospitals can provide only 1 month or 2 months of supplies and it is very difficult for the patient because they have to come in on their work day for the hospital and it took them a

day to wait in the hospital and it makes no sense. We can provide more than government hospitals do. Like, 6 months of supplies and we have the telemedicine services so it's like we can send the medicine to the patient's address so they do not have to come to the clinic. They can just inform us via email or any chat platform, do the payment online and we will give them the medication and it is very easy.

Dissarin: They do not need to come in?

Icetim: They do not need to come in.

Dissarin: What are some barriers to traditional HIV testing?

Icetim: Barriers to people?

Dissarin: Yes.

Icetim: I think perhaps what other people will think about them when they request to take an HIV test and a fear of others' perception.

Dissarin: What are some of the benefits and barriers to HIVST?

Icetim: Benefits are easy and fast and not that expensive. The barriers are if you do not have some basic knowledge on HIV it can make you misunderstood because most of the patients they do not know the concept of the window period, the gap that you would not detect HIV even though you have it. Like the incubation period. They need to understand that if they were at risk a couple days ago if you test today they gonna know the result.

Dissarin: They are not gonna find out?

Icetim: Yes, they will not know. They need the incubation of the virus for a little while.

Dissarin: If you are at risk a couple days ago you can come to take a test at the lab?

Icetim: No, they are still in the incubation period. So that is why I told you why counseling before testing is important.

Dissarin: Do you offer HIVST kits to be obtained anonymously?

Icetim: We have. Both buying themselves and free but if you want free we might ask for some personal information because it is the requirement from the investor or if buying the kit themselves can buy it anonymously and can buy as many kit as they want. If you want your sexual or yourself to take the test.

Dissarin: Can we buy it here?

Icetim: Yes, you can buy it here and also on the online platform.

Dissarin: How accessible are HIV self-testing kits outside of the IHRI?

Icetim: The HIVST-kit?

Dissarin: Yes.

Icetim: I think it is not that hard because I have searched in the online market and I can find it easily but the thing is that I can search because I know the keyword. But when I come to people who have no basic knowledge around this topic. There are lots of people that do not know that HIVST kits exist both in Thailand and other countries.

Dissarin: We also do not know about the HIVST kits before we started this project.

Icetim: Yes, as I said if you know it exists it is not hard to find one but if you do not know whether it exists you are going to have no idea.

Nora: One thing I would ask is, are there counseling services provided by the hospital or counseling services that are special to IHRI or to Pribta?

Icetim: I think more than half of the hospitals provide counseling but maybe counseling by nurse.

Nora: So not trained?

Icetim: It is very hard to find a place like Pribta clinic or Anonymous clinic that provide counseling by other profession. Like counseling in hospitals only done by nurses.

Dissarin: Do you think there is any difference between counseling by a nurse and counselors that are trained?

Icetim: I think there is no difference because it is not about who gives you counseling but it is about the counselor who gives you advice whether they are trained in this field or not, even doctors can give counseling as well. Nurses also can do it. Other professions can do this, even pharmacists can give you advice, as long as they have been trained in this field.

Dissarin: Can you elaborate more on the role of counselor, what topic do they give advice or it is as what you said before, or do you want to add anything more?

Icetim: Normally I provide counseling for all the clients who want to take a test, for the clients who want to take medication for prevention of HIV and if they need that medication or prevention or if they need to take anything. For people who want to start treatment, give them information. Be supportive for some people who are upset, prepare them before they meet up with doctors for medical treatment and also follow up with the patient who has to come back because we really have a clear schedule. For example, in this case we would follow up every 3 months, this case we follow up every 6 months.

Dissarin: So it is your job to follow up?

Icetim: Yes, mostly about testing, make sure that they understand the window period of the process.

Nora: So would also say that kind of description if you should stay on treatment or testing in that sort of stuff?

Icetim: My work is quite similar to the physician but I cannot prescribe the medication and the rest is quite similar.

Nora: I want to know more about counseling because it is something new to me and I want to understand more on how it is beneficial to the patients?

Icetim: Sometimes I want to deal with patients who have mental issues and anxiety or some have depression and adjustment disorder with the situation that happened to them.

Nora: We touched upon college-aged kids like, people ages 18-22 and what their attitudes are toward HIV and HIVST, if you have interacted with people in this age group?

Icetim: Due to the age that you mentioned they are in the generation-z and I think they are more open to HIV testing or getting help in sexual service and quite more open to discussing it with their friends or with people of a similar age. I think they have a better attitude about this topic and self-testing.

Nora: I guess our idea for what we want to do is on-campus where we set up the table and have information and resources to clinics on the QR-code and also be the voices to talk about HIVST or inform students that might not know.

Icetim: Do you have any plans? Do you have any project planning?

Nora: Yes, we have to plan it out, but our goal is to increase the awareness of HIVST so people know it exists.

Dissarin: Especially around the campus.

Nora: Because I think for us, I know for me I did not know that this kit existed, as I study in Bio major so I was kind of shocked that I did not know about it. So we feel that a lot of students are just not aware that it does not exist as an option, so we try to bring it up to those college kids and some population that thinks they are at risk, but in reality that everyone is at risk. So that they also know that they can use it and it is a safe, reliable test that they can get resources from which we will be a little small part but that is what we are aiming and reaching for.

Dissarin: Do you have any thoughts or comments on our aim?

Bhuchid: Or any recommendations?

Icetim: I think it is a good idea but make sure that when they test it should be in the private area. Like, a private person to talk with. Try to think of many scenarios because in the range of ages bullying happened a lot. Make sure if you want to get a test make it private.

Nora: And also giving them proper information I would say because I think since online is very big and lots of things online are not really true so informing students some of the time limit or the time frame on the test because it was something I did not know and just giving them access to resources if they should come to counseling and give them some confidential sources and kind of levels to where people feel comfortable of seeking researches.

Icetim: I think before testing the college nurses can give them basic advice but after the result came out I think they should have other help from specialist counselors.

Nora: That is kind of the good idea to work in line with the nurses and counselor at Chula to let them know that we are doing the event like this and encouraging it in this form.

Icetim: Maybe can tell the college nurse to train students first on how to do the test safely.

Nora: So we would consider doing the recommendation, for training the staff or sensitivity training for when someone got HIV positive results. Especially on campus. Yeah and I think that will wrap up. Thank you so much.

Appendix E - IHRI Interview Questions: Healthcare Staff

Hello, we are a project team, composed of students from Chulalongkorn University and Worcester Polytechnic Institute, looking to find ways to encourage HIV self-testing. We are sponsored by the Institute of HIV Research and Innovation, also known as the IHRI. Both you and any responses you give will be kept completely anonymous unless you give us express permission to use them. The results of this study will be published on the Worcester Polytechnic Institute library website. Would you be comfortable with us performing an audio recording of this interview, and would you like you and your responses to remain anonymous?

Our contact information is "bsac16.hivstkit@gmail.com"

We would like to interview you because we believe that, as healthcare workers/experts, you will be able to provide us with information about HIV, attitudes about HIV, HIV self-testing, attitudes to HIV self-testing

IHRI Interview Questions - Healthcare Staff

January 18th, 2023

HIV attitudes

- What are the general attitudes surrounding HIV and those infected? ความคิดเห็นส่วนใหญ่ต่อHIVและผู้ติดเชื้อเป็นอย่างไร
- How do attitudes vary among different demographics? ความคิดเห็นต่อHIV เป็นอย่างไรในแต่ละกลุ่มประชากร
- What are the attitudes around HIV testing? ความคิดเห็นเกี่ยวกับการตรวจHIV
- What are the attitudes towards HIV self-testing? ความคิดเห็นต่อการใช้เครื่องตรวจHIVด้วยตัวเอง

Counseling

- Briefly describe your role as a counselor to Pribta/Tangerine patients
  รบกวนอธิบายหน้าที่ของที่ปรึกษาของพริบตาที่มีต่อผู้ติดเชื้อโดยสังเขป
- How do you follow up when someone is tested positive?
  คุณติดตามผลกับผู้ที่มีผลตรวจเป็นบวกอย่างไร
- What are some common myths about HIV/HIVST you hear from college-aged patients?
  มีความเชื่อผิดๆใดบ้างที่ได้ฟังรับมาจากผู้รับการรักษาวัยมหาลัยเกี่ยวกับ HIV/HIVST
- What are some of the best ways to reach someone who is hesitant about HIVST?
  วิธีที่ดีที่สุดที่จะเข้าถึงผู้ที่ยังลังเลเกี่ยวกับการใช้ชุดตรวจ HIVST

Healthcare and treatment

- Why is early detection of HIV important? ทำไมตรวจพบเชื้อเร็วมีความสำคัญมากแค่ไหน
- What are the protocols for treating those with HIV? ขั้นตอน/ข้อปฏิบัติในการดูแลผู้ติดเชื้อ HIV
- How are your services different from other hospitals offering HIV treatment?
  ในคลินิกของคุณมีการรักษา HIV ที่แตกต่างจากโรงพยาบาลอื่นๆอย่างไร
- What are some barriers to traditional HIV testing? อะไรที่กีดกันการตรวจHIVด้วยวิธีดั้งเดิม
- What are some of the benefits and barriers to HIVST?

  ชุดตรวจ HIVST มีข้อดีและข้อจำกัดอะไรบ้าง

- Do you offer HIVST kits to be obtained anonymously?

  คุณมีชุดตรวจ HIVST ให้โดยที่ผู้รับไม่เปิดเผยตัวตนหรือไม่

- How accessible are HIV self-testing kits outside of the IHRI?
  เครื่องตรวจHIVเข้าถึงยากง่ายแค่ไหนนอกจาก IHRI

Appendix F - IHRI Interview Questions: Community Outreach Staff

Hello, we are a project team, composed of students from Chulalongkorn University and Worcester Polytechnic Institute, that is looking to find ways to encourage HIV self-testing. We are sponsored by the Institute of HIV Research and Innovation, also known as the IHRI. Both you and any responses you give will be kept completely anonymous unless you give us express permission to use them. The results of this study will be published on the Worcester Polytechnic Institute library website. Would you be comfortable with us performing an audio recording of this interview, and would you like you and your responses to remain anonymous?

Our contact information is "bsac16.hivstkit@gmail.com"

We would like to interview you because we believe that, as healthcare workers/experts, you will be able to provide us with information about HIV, attitudes about HIV, HIV self-testing, attitudes to HIV self-testing

January 18th, 2023

HIV Online Interaction

- What have you seen HIV/HIVST on social media? คุณเคยเห็นความคิดเห็นเกี่ยวกับ HIV/HIVST ในสื่อโซเชียวมีเดียด้านใดบ้าง
- How do you reach hidden populations online?
  คุณจะเข้าถึงกลุ่มประชากรที่เข้าถึงยากได้อย่างไร
- How have you advertised HIVST or the IHRI online? คุณโฆษณา HIVST และ IHRI ทางออนไลน์อย่างไร
- What are the general attitudes surrounding HIV and those infected online?
  (ทัศนคติทั่วไปเกี่ยวกับเอชไอวีและผู้ติดเชื้อในโลกออนไลน์เป็นอย่างไร?)
- What are the attitudes towards HIV self-testing online?
  ทัศนคติของคนต่อการตรวจHIVด้วยตัวเองแบบออนไลน์

Strategies

- What campaigns have been enacted to encourage HIV self-testing?
  มีแคมเปญไหนที่จะทำขึ้นแล้วช่วยส่งเสริมชุดตรวจHIVST
- What groups do you target? What groups do you want to target?
  กลุ่มคนกลุ่มไหนที่เป็นกลุ่มเป้าหมายแล้วกลุ่มไหนที่ต้องการที่จะตั้งเป้า
- What surveys, campaign events, etc. has the IHRI done in the past? What parts were successful/unsuccessful? เซอร์เวย์, แคมเปญ และอื่นๆ ที่IHRIเคยทำ
  อะไรที่สำเร็จและอะไรที่ล้มเหลว
- What methods work? วิธีไหนประสบความสำเร็จ
    - Table-sitting, posters, online adverts, others? ตั้งโต๊ะ, โปสเตอร์, โฆษณาทางออนไลน์ หรืออย่างอื่น
- What messaging has been successful in encouraging HIV testing?
  ข้อความอะไรที่ทำให้คนเข้ามารับการตรวจHIV
- What messaging has failed to encourage HIV testing?
  ข้อความไหนที่ไม่สามารถดึงดูดให้คนเข้ารับการตรวจ
- What have you done in past events to attract people to join your event?
  เคยทำอะไรในอีเว้นท์ที่ทำให้คนสนใจในการเข้าร่วมอีเว้นท์
    - What deters people from joining events? อะไรทำให้คนไม่เข้าร่วมอีเว้นท์
- What recommendations would you make for our project?มีคำแนะนำอะไรให้พวกเราสำหรับโปรเจ็คนี้
- Do you think table-sitting is a good method? คิดว่าการใช้วิธีตั้งโต๊ะเป็นวิธีที่ดีหรือไม่
- What data, methods, or anything do you need? ข้อมูล, วิธีหรืออะไรที่ต้องการให้เราทำมั้ย
- Do you have any connection with other charities related to HIV?
  มีคอนเนคชั่นกับองค์กรอื่นที่เกี่ยวข้องกับการกุศล(หรือเกี่ยวข้องกับHIV)หรือไม่

Counseling

- What is the counselor's role for Tangerine patients? What is the difference between your role and a Pribta counselor's role?

- What can be done to ease any negative feelings that people feel after having a reactive HIV self-test?
- What are some barriers that trans women specifically face when seeking HIV testing? Do you think HIV self-testing kits would address any of these barriers?
  อะไรที่เป็นอุปสรรคต่อผู้ชายที่แปลงเพศในการตรวจHIVที่คลินิก?
  คุณคิดว่าการตรวจHIVด้วยตัวเองจะช่วยแก้อุปสรรคเหล่านี้หรือไม่?
- We heard from Krittaporn Termvanich that IHRI uses Tangerine as a pathway for announcing things about HIV testing and HIV self-testing, could you please explain about that in detail? (ได้โปรดอธิบายเพิ่มเติม เกี่ยวกับข้อมูลที่เราได้รับจากคุณกุ้งมาว่า IHRI ใช้ Tangerine เป็นเส้นทางสำหรับการประกาศเกี่ยวกับการตรวจ HIV และการตรวจHIV ด้วยตนเอง)
- What proportion of your patients are in the 18-22 year old age group? What do they already know about HIV? (ผู้ป่วยของคุณที่อยู่ในกลุ่มอายุ18-22ปี
  คิดเป็นสัวส่วนเท่าไหร่จากผู้ป่วยทั้งหมด)

Appendix G - Questions for Focus Group on HIV and HIVST at Chulalongkorn University

- Hello, we are a project team from Chulalongkorn University and Worcester Polytechnic Institute looking to find ways to encourage HIV self-testing on college campuses. We are sponsored by the Institute of HIV Research and Innovation (IHRI). Any responses you give and your identity will be kept completely anonymous. Please do not provide your name. The results of this study will be published on the Worcester Polytechnic Institute library website.
- THIS SURVEY IS COMPLETELY ANONYMOUS
- NO IDENTIFYING INFORMATION IS NECESSARY

Questions for Group Discussion

1. What is HIV?
2. What is the average person's attitude toward those with HIV?
3. What kind of people have HIV?
4. What are your attitudes toward those with HIV? Why?
5. A close family member, friend, or loved one tells you in private that they have HIV. How do you react?
6. You visit your doctor for a routine check-up. Even though you don't do anything you think would put you at risk for HIV, your doctor asks you if you would like to be tested for it. How do you respond, and why?
    a. You agree and the results come back as positive. How do you react?
7. How do people prevent themselves from getting HIV?
8. While you're at lunch with your friends, a disruptive peer from one of your classes approaches you and falsely claims that you have HIV. What are some of the harmful things that this person then says to you?
9. You hear a rumor during the day that your partner has HIV. Later in the day, you have an opportunity to talk with them in private. What do you talk about?

10. You are on the way to lunch, but see a group of students sitting at a table that is decorated with information about HIV. You don't think much of it until you see or hear something that makes you want to talk to them about HIV. What gets your attention?
11. What do you know about HIVST?
12. You are handed a free HIV self-testing kit by a group of students sitting at a table that is decorated with information about HIV. What do you do with the test?

Appendix H - Survey for Determining Awareness and Misconceptions of HIV and HIVST

We will start the survey with the following descriptions:

- Hello, we are a project team from Chulalongkorn University and Worcester Polytechnic Institute looking to find ways to encourage HIV self-testing on college campuses. We are sponsored by the Institute of HIV Research and Innovation (IHRI). Any responses you give and your identity will be kept completely anonymous. Please do not provide your name. The results of this study will be published on the Worcester Polytechnic Institute library website.
- THIS SURVEY IS COMPLETELY ANONYMOUS
- NO IDENTIFYING INFORMATION IS NECESSARY

Survey:

Please fill out the following demographic questions (กรุณาตอบคำถามดังต่อไปนี้):

University (สถานศึกษา):

a. Chulalongkorn University (ศึกษาอยู่ที่จุฬาลงกรณ์มหาวิทยาลัย)
b. Other: _____ (ศึกษาที่มหาวิทยาลัยอื่น โปรดระบุ)
c. Not currently enrolled in university (ขณะนี้ไม่ได้เป็นนิสิตนักศึกษา)

Age (อายุ):

Awareness Survey

1. How at risk do you feel you are of contracting HIV? (คุณคิดว่าคุณมีความเสี่ยงต่อการติด HIV มากน้อยแค่ไหน)

   Please answer from 1-10 (1 is not at any risk and 10 is very high risk) :
   กรุณาให้คะแนน (1 คือไม่มีความเสี่ยง และ 10 คือมีความเสี่ยง)

   _____

Please answer True or False (กรุณาตอบคำถามถูกผิดต่อไปนี้):

2. Treatment can halt the progression of HIV: T/F (True)
   (การทานยาสามารถยับยั้งความรุนแรงของเชื้อ HIV)

3. If I get HIV, I can still do the things I enjoy about my life: T/F (True)
   (สมมุติว่าฉันติดเชื้อ HIV ฉันจะยังสามารถใช้ชีวิตอย่างมีความสุขได้)
4. HIV and AIDS are the same thing: T/F (False) (HIV กับ AIDS คือโรคเดียวกัน)
5. If I engage in behavior that would transmit HIV with an HIV-positive person, there is no way that I can prevent myself from getting HIV: T/F (False)
   (ถ้าฉันมีพฤติกรรมเสี่ยงกับผู้ติดเชื้อ HIV เช่น มีเพศสัมพันธ์ หรือ การใช้เข็มร่วมกัน ฉันจะไม่สามารถป้องกันตัวเองจากการติดเชื้อ HIV ได้เลย)
6. If I am in an exclusive relationship with my partner, there is no way for either of us to contract HIV: T/F (False) (ถ้าฉันมีเพศสัมพันธ์กับคู่ชีวิตของฉันเท่านั้น เราทั้งคู่จะไม่มีความเสี่ยง HIV)
7. HIVST is less accurate than an HIV test done in a clinic T/F: (False) (ชุดตรวจ HIV ด้วยตนเองมีความแม่นยำน้อยกว่าการไปตรวจ HIV ที่คลินิก)

Please answer the following questions (กรุณาตอบคำถามต่อไปนี้ตามความจริง):

1. Have you ever heard of HIV self-testing prior to this survey?
   (คุณเคยได้ยินเกี่ยวกับชุดตรวจHIVด้วยตนเองก่อนทำแบบสอบถามนี้หรือไม่)

a. Yes
b. No

2. Do you know where you can get an HIV self-testing kit? (คุณทราบหรือไม่ว่าชุดตรวจ HIV ด้วยตนเองได้ที่ไหนบ้าง)
    a. Yes
    b. No
3. Have you ever used an HIV self-testing kit? (คุณเคยใช้ชุดตรวจHIVด้วยตนเองไหม)
    a. Yes
    b. No

Appendix I - Table-sitting materials

Poster at table-sitting

Pamphlet Outline

Appendix J - Focus group transcript

To keep the participants confidential, we have identified each participant as their faculty.

BALAC: Bachelor of Arts in Language and Culture

COMMARTS: Faculty of Communication Arts

BSAC: Bachelor of Science in Applied Chemistry

MED: Faculty of Medicine

ISE: International School of Engineering

Dissarin: If you guys are ready then we can start.

Arena: What is HIV in your understanding?

BALAC: I actually don't know about it that much but I think it probably is like AIDS in a way that it is transmitted through sexual contact.

COMMARTS: HIV is a kind of virus that is similar to AIDS but isn't the same thing.

BSAC: I also think that HIV is a kind of virus. In my understanding, HIV lowers the level of white blood cells to the point that it will turn into AIDS. If the person gets an early treatment then it will not turn into AIDS but once it is AIDS, it will be hard to cure. HIV is also transmitted through secretions and blood.

MED: They are right.

ISE: I think that one is a virus and another is disease but I'm not sure which one is which. I think it is similar.

Arena: What kind of people have HIV?

BALAC: I think it can be all kinds of people. If you were in contact with secretions, you can get HIV, it doesn't necessarily mean that you have to be a party person like if you touch somebody's saliva and the person has HIV then you can also get HIV.

COMMARTS: It can be transmitted from mother to child as well.

Arena: A close family member, friend, or loved one tells you in private that they have HIV. How do you react?

BALAC: I would be surprised but I will not be disgusted.

BSAC: I would ask what stages they are in like has it developed into AIDS yet. If it was still in early stages then I would encourage them to go to the doctors and get the proper treatment but if they are in a later stage, I would come to terms with that. I think that as of now, there is no cure right? I'm not sure.

ISE: I think that right now there are only medications for controlling it.

Arena: There are 3 kinds of medications which is PeP, PreP, and ART.

BSAC: But these will not cure HIV right?

Dissarin: No, but it can make the viral load become undetectable which means that it is untransmittable.

Natpawin: You guys have mentioned earlier that HIV can be transmitted through saliva so I was wondering if you have shared a drink with your friend who has HIV, will you get tested for HIV?

BALAC: Yes, because it means that I'm at risk. If I get tested then I can warn others around me not to share personal belongings.

COMMARTS: It's like if we know that our friend has Covid.

BALAC: Yes. Exactly.

Arena: What are your attitudes on HIV? There are some sayings that people with HIV are promiscuous or are LGBTQIA+ so what are your thoughts on that?

COMMARTS: I think that it only increases the chance of HIV if you have sex.

BALAC: It is a stereotype from the media that LGBTQIA+ people are sexually active but in reality, it is not true for all.

Arena: We got a question from our professors that nowadays information about HIV and the treatment is very accessible through the internet. Do you think that with all this information, people will still get tested? Since they might think that it doesn't matter whether they got HIV or not, they can just take medicine.

BALAC: I don't think that the reason why people are not getting tested for HIV is not because it is easily treatable but rather because it is associated with having sex. People still very much

associate HIV with sex for example, I never have sex so I'm confident that I don't have HIV so I don't get tested.

ISE: During Loy Kratong's Festival, there was a HIV testing booth and my friend got dragged in there. Once he got out, he actually just ran away. I think that if you are sure that you don't have HIV then why would you get tested. The person who get tested must feel like they have some sort of risk.

BSAC: Society is also judging that if you get tested for HIV that means that you are promiscuous.

COMMARTS: People will judge you.

BALAC: Right. Society still views it as something negative.

Arena: Do you mean society views sex as negative or HIV as negative?
COMMARTS: Both.

BALAC: But I think HIV is worse.

ISE: I think people are scared of diseases like Covid.

MED: Right now they are trying to reduce stigma around HIV so that people can get more access to the treatment. Because otherwise, people will fear being judged and don't get tested which means they will not get proper treatment. Even though there are medications that can prevent HIV. Some people might miss out on that if they are too embarrassed to ask.

Arena: As ISE has mentioned earlier, that your friend ran away from HIV testing. If your doctors recommend you do HIV testing, how would you respond?

ISE: I think it's fine. There is no drawback.

COMMARTS: If they don't charge extra then I'm fine with it.

Dissarin: Even if you don't do anything you think would put you at risk for HIV but your doctor still recommends you do HIV testing, how would you feel?

COMMARTS: No. Because I know that HIV doesn't only transmit through sex.

BALAC: It's like checking for liver cancer. I know that I don't have it but if the doctor recommends then I would do it.

BSAC: I also think the same.

Arena: How do people prevent themselves from having HIV?

BSAC: If I have a girlfriend, then we would both get tested and also use protection during sex. Even if I know that I don't have HIV, I would still use protection because it also prevents unwanted pregnancy.

COMMARTS: Which I did not exchange any secretions with anyone.

BSAC: In my opinion, in Thailand's culture if you are going to kiss someone that person should be the one I am dating, it is improbable to impossible if someone is going to be in a party and just kiss so I do not think that is going to happen.

Arena: While you're at lunch with your friends, there is someone you do not know approaching you and claiming that you are infected with HIV without any reason, with these negative words toward HIV like this, how would you feel about this? Except that person is weird.

BALAC: I would feel how their parents raised a person also about this person's education, etc.

Narrator: Let me fix how I state the question, it is like if this person does not like you and this person approaches you and then makes up a story that you are infected with HIV. What statement do you think that this person would make, like what type of language do you think this person would use?

ISE: What do you mean by type of language?

Dissarin: For example, this person is promiscuous because he/she is infected with HIV. What is like the word this person would use to associate you with HIV.

BALAC: I think this would associate with sexual and gender.

ISE: I also agree with that.

BALAC: For example, like, "You transvestite" or "You gay". Or even "You slut".

Dissarin: MED, do you have anything to add?

MED: Yes, I think that is one more topic that could be very interesting. Why do people mostly associate HIV with MSM because comparing any type of sex, people who have anal receptive got the most opportunity of infecting with HIV. This is the fact that HIV is most associated with MSM.

BALAC: So you are meaning that having sex that way has more risk that vaginal sex?

MED: Yes, because the anal mucosa was not designed to expand but vagina was designed differently. The anal mucosa was easier to rip.

ISE: So you mean like you are infected because of rippage?

Dissarin: From what I know MED said like the anal mucosa is very thin and it was not designed to have stuff going in it. Although it is not being ripped it can be risky because the virus can enter easily if I remembered correctly.

ISE: So you mean like the anal mucosa is like a barrier of virus?

Arena: Kind of like that, and this is not specific only to men it also occurs to women as well. Having anal sex also risks contracting HIV. So let's continue with the next question. Do you know anything about HIVST or have you heard about it before?

BALAC: No, I have never heard of it before.

COMMARTS: Yes, I have heard of it but I know nothing about it at all.

BALAC: I think you have to take a test at the hospital.

ISE: I thought there is only blood based self-testing. I only recently learned from my friend who works in the project that oral tissue based existed.

BSAC: Me too, I thought that there is only blood based self-testing.

Arena: What if we decorated a table-sitting and we would hand out the HIVST kit to ordinary people, what would you do with it?

ISE: Test it, of course.

BALAC: If people know that everyone has risk they might take a test with it. But if people in the older generation like our parents. They might be a little confused about what I would do with it then I probably have no risk anyway.

BSAC: I want to know the process of how to test. Is it hard?

Dissarin: There are video clips teaching how to test but the older version blood based kit is quite hard to test. The newer blood based kit is quite easy as well as the oral tissue based kit.

ISE: Is the accuracy high though?

Dissarin: 99% but the problem is the window period. It is like after you have unprotected sex, 3 months after that then you can take the test or else if you took the earlier than that the result would be non-reactive even though, you have got HIV so it is not the problem of accuracy but it is about the window period .

ISE: So then after 3 months. That long? They would not be depressed?

Dissarin: No, it depends on the kit. It can be 3 weeks. That is just an example. If going to the lab the window period would be much shorter compared to 3 months of self-test kit.

BSAC: In my opinion, what I experienced in my family, testing for COVID-19 virus I like to used the nasal swab because I felt like it is more accurate conversely, with my parents they like the saliva swab because it is easier which this method is less accurate in the case that it has more

window error. I think lots of people would pick the easier way or the less painful way. But if we have to do the blood based test without having risk I think no one would do it.

Arena: So you mean that you would do the method only if you felt that you are at risk?

BSAC: Precisely.

Arena: So everyone can agree that people in our generation if you get the self-test kit you will take the test? Like everyone would like, I want to try.

All: Agreed.

Dissarin: I also want to ask that when you are on the way to lunch, but see a group of students sitting at a table that is decorated with information about HIV. You don't think much of it until you see or hear something that makes you want to talk to them about HIV. What gets your attention?

BSAC: I think you should start off using social media, try to push it to be viral or trend because people these days are very addicted to it. You do not have to do much at all if you just caught a viral on Instagram or Twitter people would search themselves. For example, people can take the self-test and post it on their Instagram to check in like I am HIV free. This type of thing is like a hashtag. I think you could start from that. I think you initially need to get your project in trend. Because I think if you just go out somewhere and set up the booth I think it would be hard to attract people in.

BALAC: Add on to that, I think using appropriate words also would be very important. For instance, “Did you know? Everyone can be infected with HIV ". Not meaning that you got to have sex to have risk but everyone can have risk. That can make people realize that, should I take a test.

ISE: I also want to add on. I think you have to make a booth that if people go in they would not be shy or embarrassed. Because I think the big factor that prevented people from participating in the booth would be shyness and embarrassment. I think you have to make people feel comfortable to walk into the booth.

Arena: I think we could not explain why people might feel comfortable walking to the booth, meaning that people would be shy of the people viewing from outside?

BSAC: What if you brought lots of people like 30 people. I think they would be less embarrassed about it because they might feel like everyone is doing the same thing.

Dissarin: If our booth got the big sign like HIV or AIDS would be quite embarrassed to walk in?

BSAC: Quite scary I would say.

COMMARTS: But what if it is just a booth for education? I would not be uncomfortable.

BSAC: I also feel the same.

ISE: You can use this strategy by using quite confused questions to lure them. For example, do you know what disease can be infected through oral fluid? This can make them curious and walk in.

BALAC: Make it viral on TikTok and make content using the HIVST kit.

BSAC: Try to turn it into a social campaign. For example, like covid you record videos proving you are vaccinated and get a badge in return or something. Try to implement something like “I am HIV free” kind of like that. Now it is on you to think of the nice wording.

Dissarin: This is our idea, at Siam we are not able to have a table but we would have a mascot and walk around raising awareness. Also on Valentine's Day, we would have table-sitting during the market. We would count the amount of stickers we gave out, due to it being Valentine's Day people would have stickers on them anyway so that we could count the amount of people who come in. We would also have the prize wheel, and Arena has designed the pamphlets and have some surprise inside (Condom). Do you think this concept would work? Would you be willing to come in or is it too scary?

BALAC: It depends on the color of the booth.

COMMARTS: In our generation, I think people already generalize this topic and giving pamphlets would be a good idea and it would increase the protection.

BALAC: I think it is nice and minimal.

Arena: I think I would mix up the color a little so everyone might get a different color.

BALAC: So it could be fun wondering which color they may get.

Arena: The point is it is not weird or scary right? Giving strangers condoms. Because we got the feedback from professors as well, that they are concerned.

BSAC: I think it is because of the generation gap, our target group is teenagers so I think it's fine.

Dissarin: Our sponsor said that people love free stuff, and especially for condoms which means that they do not have to buy condoms for themself. But it is not scary right?

All: It is fine because you guys hide condoms in the pamphlet too.

COMMARTS: And there is information on pamphlets.

BALAC: At first I didn't even know that there was a condom inside. And I felt that this move also normalizes that carrying a condom is not weird, that is what everyone should do.

Dissarin and Arena: We think that all for questions from us.

BSAC: I do have one question, have you ever asked WPI students about their perspective towards this topic.

Dissarin: They said that they never heard about HIVST before this project too.

ISE: Where did the HIVST come from again?

Arena: it's licensed by the USA but they have a factory in Thailand too and with FDA approval. It is FDA protocol that the product must be in Thai.

BSAC: I'm asking because I wanna know if there is something that makes American teenagers concerned about HIV.

COMMARTS: I was thinking about this too, they seem to normalize this topic more than we did.

Nora: I think we are quite concerned about HIV but just never heard of the self-testing kit, at least from what we have done that what we have found it's like depends on our specialization too, I'm a bio major so I think that's the reason why.

Arena: How about mindset and perspective then, do people link HIV with sexual activities? and also HIV and LGBTQ+ and promiscuous stuff.

Nora: I think it depends too, like their minds go to that topic too, younger kids like students are a little bit thinner about this but the older one might not.

BALAC: I'm just curious, were they scared about this?

Daniel: It depends again, some do, some don't.

Nora: Like we have seen that there are treatments, I will not say "scared" but I wouldn't say like people are "conscious" about this. I think it's getting to the point where they don't see it everyday, does it make sense?

COMMARTS: Yes, it does.

BALAC: I'm curious about the active and inactive result too, is it similar to COVID?

MED: For HIV basically it is not spreadable to everyone even to the partners when it is negative but the virus is still in the body. If the people living with HIV don't take medications, they can have positive results again. But for COVID it is completely cured.

COMMARTS: And how about from mother to children.

MED: By Breast milk.

Arena: but the point is, they are not the target group for us because they already know their results and keep contacting the health care service. They could have HIVST at their house to check their status if they want to.

Dissarin: Main aim of HIVST for our project is that it will be better if people know their result and get the treatment quickly and if not, HIV can progress into AIDS.

Arena: That’s all for today, thank you everyone for joining us.

Appendix K - Email for Chulalongkorn Professor

Thai version

เรียน อาจารย์ (Insert Professor's Name)

สวัสดีค่ะ หนูชื่อดิศริน ธรรมเภตรารักษ์ ขณะนี้เป็นนิสิตอยู่ชั้นปีที่ 3 สาขาวิชาเคมีประยุกต์(BSAC) ภาควิชาเคมี คณะวิทยาศาสตร์

สำหรับวิชาโครงงานวิทยศาสตร์และสังคมแบบปฏิสัมพันธ์ (Interactive Science and Social Project) พวกเราได้จัดทำแบบสอบถามสำหรับนิสิตนักศึกษาของจุฬาลงกรณ์มหาวิทยาลัยเพื่อเก็บข้อมูลเกี่ยวกับความเข้าใจเรื่อง HIV และชุดตรวจ HIV ด้วยตนเอง

จึงอยากขอความร่วมมือจากอาจารย์ในการเผยแพร่แบบสอบถามในคลาส (Insert Course Name) ของอาจารย์ค่ะ หนูได้แนบ QR code และ ลิ้งค์ URL ไว้ด้านล่างอีเมลนี้แล้วค่ะ

Link URL: https://docs.google.com/forms/d/1gLCTiaoTRCRFF9rpglZeK6ltRV9-h1hW4gB6vi8eEvA

ด้วยความเคารพ

ดิศริน ธรรมเภตรารักษ์ (กลุ่ม IQPISSP3)

English Version

Dear, (Insert Professor's Name)

My name is Dissarin Thampetraruk. I'm a third year student from Bachelor of Science in Applied Chemistry (BSAC) in the Faculty of Science.

For our group's Interactive Science and Social Project, we decided to conduct a survey for Chulalongkorn's undergraduate students on HIV and HIVST awareness and attitudes. Therefore, I would like to ask for your help to distribute the survey in your (Insert Course Name). I have attached the URL link as well as QR code in this email.

Link URL: https://docs.google.com/forms/d/1gLCTiaoTRCRFF9rpglZeK6ltRV9-h1hW4gB6vi8eEvA

Best regards,

Dissarin Thampetraruk (IQPISSP3)