Appendix A

Other Formulations of PrEP

In addition to TDF/FTC and oral TAF/FTC, other drug formulations are also being researched as alternatives to HIV prevention. Some formulations can compensate for the disadvantages of TDF/FTC and TAF/FTC in that there are no renal function limitations and no daily medication is required. These formulations are as follows:

Administered vaginally	Administered orally	Injectable	Sub-dermal implant
1. Tenofovir gel	1. TDF/FTC	1. Cabotegravir	1. Islatravir
2. Dapivirine vaginal ring	2. TAF/FTC	2. Lenacapavir	2. Cabotegravir
	3. Islatravir	3. Broadly neutralizing antibodies (bNabs)	3. TAF

Currently, in Thailand, the National Health Security Office (NHSO) is supporting the PrEP formulation of oral TDF/FTC. In addition, in practice, daily oral TAF/FTC has begun to be used and is approved by the US Food and Drug Administration (US FDA) for the prevention of HIV infection in all forms of sexual intercourse except for receptive vaginal sex. The Dapivirine ring can inserted vaginally by the user, and changed every 28 days. The ring has been approved by WHO and the European Medicines Agency (EMA) for use in cases where oral PrEP is not available or contraindicated. This is especially true in high-risk areas such as Sub-Saharan Africa, where studies have shown the ring to be effective in reducing HIV infection by 35%. Other drugs, such as monthly islatravir and cabotegravir, are injected every 8 weeks. Research on these formulations is pending and there are no practical instructions for use.

Dapivirine Vaginal Ring

Dapivirine has been incorporated into a vaginal ring inserted vaginally, and has active release of the drug for approximately one month. Studies have shown that this ring is effective in preventing HIV infection in women and, thus, may be an important option when oral PrEP is not available.

Study Results of Dapivirine Vaginal Ring

Project	Study Population	Location	Study Findings
ASPIRE (Phase 3) found to reduce the chance of contracting HIV by 65%	2, 629 women aged 18-45	Zimbabwe, Malawi, Uganda, South Africa	• Overall, a 27% reduction of risk of contracting HIV • When considering only those aged at least 21 years, there was a 56% reduction of risk of HIV; which is thought to be due to consistency in the use of the dapivirine ring • When considering consistent use of the dapivirine ring, there was a 65% reduction in risk of HIV

The Ring Study (Phase 3)	1,959 women aged 18-45	Uganda, South Africa	Overall reduction in risk of contracting HIV by 31%
HOPE (Open-label extension of ASPIRE)	1,456 women	Zimbabwe, Malawi Uganda South Africa	Overall, a 39% reduction in the risk of contracting HIV
DREAM (Open-label extension of The Ring Study)	941 women age 20-50 years from the Ring Study	Uganda, South Africa	As a whole, reduced risk of contracting HIV by 62%

Cabotegravir (injectable)

In 2016, a large-scale clinical trial for the prevention of HIV infection, HPTN083, was initiated using the injectable antiviral drug cabotegravir. The drug is injected intramuscularly 1 time every 8 weeks. The study included a total of 4,570 volunteers from 43 leading research institutions in seven countries, including the United States, Thailand, Brazil, Peru, Vietnam, Argentina, and South Africa.

This project found that injectable carbotegravir among MSM and transgender women subjects was more than three times, or 66 percent, more effective than oral TDF/FTC in preventing HIV infection. Preliminary data recorded 52 new HIV cases in the project, 39 of whom were HIV-infected in the oral TDF/FTC group (accounting for a 1.22% incidence of new infections), and 13 cases in the carbotegravir injection group (0.41% incidence).

The HPTN 084 project, started in 2017, included a total of 3,223 women aged 18-45 who were at risk of HIV infection. Participants were recruited in 20 sites in seven countries in sub-Saharan Africa (Botswana, Kenya, Malawi, South Africa, Eswatini, Uganda, and Zimbabwe). Participants were randomly allocated to two arms:

- Arm A – Carbotegravir as an intramuscular injection every 8 weeks and a daily oral TDF/FTC placebo.
- Arm B - daily oral TDF/FTC and placebo carbotegravir intramuscular injection every 8 weeks

The HPTN 084 study found a total of 38 new HIV infections, with 4 in arm A and 34 in arm B, representing a 0.21% HIV infection rate ([95% CI] 0.06 to 0.54) in arm A, and 1.79% (95% CI 1.24 to 2.51) in arm B. Long-acting cabotegravir was also found to be 89% ([95% CI] 68-96) more effective than TDF/FTC. The results show that carbotegravir is more effective at preventing HIV infection than oral PrEP (TDF/FTC). Regarding adverse drug events, most of the cases in both groups were mild or moderate. Gastrointestinal disorders and nausea were more common in the TDF/FTC treatment group, and injection site reactions were low in both groups, although injection site reactions were higher in the carbotegravir injection group.

It can be seen from the two trials (HPTN 083 and HPTN 084) that both drugs (injectable carbotegravir and oral TDF/FTC) are effective in preventing HIV infection and are safe. Injectable carbotegravir is a long-acting drug that can be administered every 8 weeks. Thus, that formulation has the potential to be another HIV prevention option for people who don't like taking pills, people who often forget to take their medication or people with side effects of TDF that can affect the kidneys.

That said, injectable carbotegravir for the prevention of HIV infection is still in clinical trials and it has not yet been registered by the relevant drug authorities and is not yet available in the market.

Appendix B

Interactions between the Drugs in PrEP and Other Drugs

Drugs used concurrently with PrEP	Oral TDF/FTC	Oral TAF/FTC	Cabotegravir (IM injection)
Oral contraceptives, sex hormones, anti-testosterone hormones	No drug interactions reported	No drug interactions reported	No drug interactions reported
Drugs that affect the kidneys, such as aciclovir, ganciclovir, aminoglycosides, and high-dose or combination NSAIDs	May increase TDF drug levels, affecting the kidneys. Dual use during a prolonged period of time	No drug interactions reported	No drug interactions reported
Anticonvulsants: carbamazepine, oxcarbamazepine, phenobarbital, phenytoin	No drug interactions reported	Concomitant use is contraindicated as it may decrease TAF/FTC and cabotegravir	Concomitant use is contraindicated as it may decrease TAF/FTC and cabotegravir
TB treatments: rifabutin, rifampicin, rifapentine	No drug interactions reported	Concomitant use is contraindicated as it may decrease TAF/FTC	Concomitant use is contraindicated as it may decrease the level of cabotegravir (rifabutin can be given however)
Hepatitis B drug adefovir	TDF and TAF are closely related to adefovir and are therefore contraindicated	TDF and TAF are closely related to adefovir and are therefore contraindicated	No drug interactions reported
Sildenafil (Viagra)	No drug interactions reported	No drug interactions reported	No drug interactions reported
Gastritis medication	No drug interactions reported	No drug interactions reported	No drug interactions reported
Sleeping medication: benzodiazepine	No drug interactions reported	No drug interactions reported	No drug interactions reported
Medication for drug addiction: methadone, naloxone	No drug interactions reported	No drug interactions reported	No drug interactions reported
Anti-hepatitis C drug • Ledipasvir/sofosbuvir • Sofosbuvir/velpatasvir • Sofosbuvir/velpatasvir/voxilaprevir • Pegylated interferon alfa-2a or 2b. • Ribavirin	No dose adjustment is required	No drug interactions reported	No drug interactions reported
Mood-altering drugs such as cocaine, methamphetamine, heroin, alkyl nitrite, and alcohol	No drug interactions reported	No drug interactions reported	No drug interactions reported
Dietary supplements	Mostly no drug interactions reported	Do not take it with St. John's Wort, as it may lower levels of TAF/FTC and cabotegravir	Do not take it with St. John's Wort, as it may lower levels of TAF/FTC and cabotegravir

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Appendix C

Estimating Creatinine Clearance with the Cockcroft-Gault Equation

The Basic Cockcroft-Gault Equation

CrCl = [(140 - age) × weight/ 72 × creatinine] x 0.85 if female

CrCl: creatinine clearance in milliliters per minute.

Age: in years

Weight: in kilograms

Creatinine: In milligrams per deciliter

Ideal weight

The weight should be the ideal body weight.

Male ideal weight = 50 + (0.91 × (height-152.4))

Female ideal weight = 45.5 + (0.91 × (height-152.4))

Weight: in kilograms

Height: in centimeters

If the actual weight is less than the ideal weight, use actual weight

Considerations for transgender people

For transgender people who have been using sex hormones for more than 3 months: Calculate the CrCl using their current gender.

For transgender people who do not use sex hormones: Calculate CrCl using their gender at birth.

References

Appendix D

Experience in organizing PrEP services during Covid-19: 16 community health centers, of the Department of Health, Bangkok Metropolitan Administration (BMA)

Epidemic spread of Covid-19 in Thailand has generated 28,947 cumulative confirmed cases (as of April 2, 2021). Classified by area of treatment, in Bangkok there were 3,752 cases (14.5%), 34 deaths (36.2%), and the clusters of infections was among employees in entertainment establishments, factories, and markets. The six high-risk areas were Bang Khun Thian, Bang Bon, Nong Khaem, Chom Thong, Bang Khae, and Phasi Charoen Districts.

- **Experience of providing PrEP service during the Covid-19 situation of BMA health centers**

1) Adjustment of the service delivery model to adapt to the Covid-19 situation

1.1) Organize a proactive service for detecting Covid-19 infection in entertainment center clusters among service personnel by integrating outreach with the provision of information and knowledge about the prevention of Covid and HIV infection. Requests for protective equipment include condoms and pre/post-exposure HIV prophylaxis (PrEP/PEP), and sources to contact for help when entertainment venues are closed, but condoms and PrEP/PEP are still needed, such as LINE OA @prepbangkok and hotline phone numbers.

[insert photo]

1.2) Provision of PrEP/PEP services in 16 BMA health centers in accordance with the Coronavirus Disease 2019 Prevention (DMHT) measures and to increase part-time services in order to reduce congestion of service recipients, namely:

- Public Health Service Center #26, Chao Khun Phra Prayoonwong: Open for service outside of business hours on Tuesdays from 4:00 PM to 8:00 PM.

- Public Health Service Center #28 Krung Thonburi, open on Thursdays from 4:00 PM to 8:00 PM.

- Public Health Service Center #29, Nuchnet, providing services on Mondays and Fridays from 4:00 PM to 8:00 PM.

- Public Health Service Center #36, Bukkhalo organizes service on Thursday from 16.00-20.00

[insert photo]

2) Send PrEP to recipients via postal service by considering 2 forms:

2.1) Let the recipient draw blood at a hospital near their home and take a photo of the results and send them to the staff.

2.2) Accommodate service recipients who take their medicine regularly by extending the check-up appointment frequency from 1 month to 3 months

3) Organize various activities online, such as meetings to summarize the results of operations and obstacles, through the Zoom application, and consultations between service providers of each

hospital by telephone and the LINE Group system (e.g., problems with blood results of service recipients, drug withdrawal, etc.).

[insert photo]

4) Modify the format of the media to promote knowledge, service information on PrEP, PEP, HIV, and STIs to 70% online format/30% offline, in order to increase the reach to MSM and transgender women at high risk of HIV infection, and youth, by hiring YouTubers to promote services, infographics (‘*Goodbye HIV/Syphilis’*) contests, and short clips (‘*Hello PrEP, Hello Syphilis’*).

[insert photo]

5) Adjust the format for the target group so that they can access services more conveniently, and reduce congestion in receiving services by allowing them to book appointments online through the BMA Quick app.

[insert photo]

Appendix E

Experience of Providing PrEP during Spread of Covid-19 by Key Populations (KPLHS)

During outbreaks of Covid-19, the Thai government has announced social distancing measures, temporary lock-downs of epicenters of spread, and inter-provincial travel restrictions and curfews. As a result, some clients are unable to travel for check-ups or resupply at their regular service provider. Some may be reluctant to travel outside the neighborhood out of concern about contracting Covid. The Covid containment measures and fear of Covid have reduced uptake of PrEP services during the Covid-19 era. Service providers are trying to adapt to reduce client/provider concern about risk of Covid while making it easier to retain clients in the health service system without sacrificing quality. Some of these adaptations are as follows:

- Reduce the risk of contracting Covid-19

- Reduce the time spent at health centers by providing services via telemedicine or telehealth.

- Receive uninterrupted PrEP resupply without visiting the clinic by mailing the medicines

• PrEP service models during the era of Covid-19

In order to be able to continue serving PrEP during Covid outbreaks while still being able to comply with social distancing measures and not sacrificing quality, the following are five augmented models to maintain uninterrupted services:

1) Online booking: This is only available to clients who have made reservations through the URL www.testmenow.net in order to manage the number of clients at the clinic area at any one time so as to conform to social distancing guidelines.

2) Same-Day PrEP for all new PrEP recipients: PrEP will be given on the same day that all blood samples are drawn. This model includes the service under the Princess Ginseng Project and PrEP recipients of the UHC scheme of the National Health Security Office (NHSO).

3) PrEP Xpress is a service that reduces the time the client must stay in the clinic to no more than 30 minutes by modifying some processes to be online, such as filling out a risk assessment form, giving online consultation via video call, etc.

4) PrEP Telehealth with online counseling: This model includes sending medicines via mail or messenger service to a client's home. This is convenient for PrEP clients who have had to return to their family home in the provinces or have other obstacles to visiting the clinic or community health center. This service is restricted to clients with a history good compliance with the PrEP regimen.

5) Mobile PrEP is an integration of service with the existing fleet of mobile VCT units which visit communities or locations closer to where the target population lives and/or works. The unit can provide laboratory testing and counseling, and staff can prescribe PrEP the same as if the service were in a community health center.

PrEP service delivery models are implemented by a number of Civil Society organizations:

o Rainbow Sky Health Center, Ramkhamhaeng, Hat Yai, Ubon Ratchathani

o SWING health centers in Bangkok and Pattaya

o SISTER Pattaya Foundation Health Center

o M Plus Foundation Health Center, Chiang Mai, Chiang Rai

o Caremat Health Center, Chiang Mai

Procedures for organizing PrEP services in the Covid-19 epidemic situation in Thailand

Register Online

• Take a risk assessment form before entering the service

• Sign a document consenting to send blood results via SMS/LINE

->

Consultation at the service center or through online channels such as LINE video call

->

Blood test/result notification

• Blood collection at the service center.

• Blood test recipients at nearby clinics

• Send the results to the staff via LINE or SMS

->

➔ PrEP approval by a doctor via LINE or SMS -> Dispense PreP (mail or delivery service) -> Follow up with the PrEP client

Appendix F

Data from Follow-up of Adolescent PrEP Acceptors

A study of PrEP for adolescents conducted a follow-up survey at 6-12 months of use. The results are as follows:

Efficacy: No HIV infection was detected during PrEP among Thai adolescents and young adults during the follow-up period.

Safety

1. No lower-than-determined renal function was found among adolescents receiving PrEP based on creatinine monitoring and basic urinalysis in the Buddy CU Clinic Project, Adolescent PrEP Project by Siriraj Hospital in collaboration with the Bangkok Health Hub Clinic, PrEP Bangkok, YMSM Project by the Silom Community Clinic, and the PrEP Project by the Piman Clinic.

2. No serious side effects were found from PrEP use.

3. No change in bone mineral density was found in adolescents receiving PrEP from the Adolescent PrEP Project of Siriraj Hospital (in collaboration with the Bangkok Health Hub Clinic). According to a study of the Buddy CU Clinic, 39 percent of adolescents in the Siriraj Adolescent PrEP Project had vitamin D deficiency, and the period of age 15-24 is an important period for bone formation. Thus, there are recommendations for calcium and vitamin D supplementation for adolescents receiving PrEP services.

Follow-up of PrEP services

1. An assessment of PrEP effectiveness in adolescent users found that, while taking PrEP, teenagers had rather good adherence to the regimen. That said, adolescents are also a group of people with uneven periods of risk of contracting HIV (seasons of risk). For example, at some periods of time, youth are in sexual relationships, while at other periods they are abstinent. Therefore, adolescents need to develop the skill to accurately assess their chances of acquiring HIV, and there should be more incentives to HIV testing.

2. Retention: It was found that adolescent MSM, received regular and frequent follow-up. In order to increase the rate of retention in the service, it may be necessary to improve understanding of the barriers to receiving services in different groups of adolescents. For example, adolescent MSM often prefer to seek service alone, whereas TG women and female adolescents prefer to seek service in groups of peers.

3. The prevalence of STIs is high among adolescents. For example, 23 percent of participants in the Buddy CU Project had an STI, and in the PrEP Adolescent study of Siriraj Hospital (in collaboration with Bangkok Health Hub Clinic) the STI prevalence was 31 percent among subjects. The Silom Community Clinic's YMSM Project found prevalence of chlamydia of 17 percent (38 cases from a total of 222 volunteers) and gonorrhea prevalence was 9 percent (21 cases). However, STI infection rates were no higher during or after PrEP treatment. According to the participants, a major obstacle to the high STI infection rates was the cost of diagnosis and treatment.

4. Some projects found low condom use rates among adolescents who decided to use PrEP, but did not find any lower condom use rates during or after PrEP.

Examples of PrEP programs and PrEP services for adolescents and lessons from the project

1. **PrEP Bangkok**, **implemented through the community health centers of the Bangkok Metropolitan Administration (BMA).** This project provided PrEP to people at elevated risk of HIV. Service was free of charge for all age groups. The service include screening for STIs and HIV. A total of nine STI clinics of the BMA hospitals and 16 BMA health centers participated in the project.

From 2017 to 2020, there were a total of 2,079 PrEP recipients, with the number increasing every year. Most acceptors were age 25 years or over (or 1,384 persons). Those under age 25 years accounted for just under one in three acceptors. There were 664 acceptors age 18-25 years and 31 acceptors under age 18. Just under half (46%) of the clients who requested PrEP cited unsafe sex as the reason (i.e., requesting PrEP after taking PEP), while a third said they were in the MSM group and felt at elevated risk of HIV.

In addition, the 16 BMA health care centers have provided PEP services from 2018 to the present, and the number of acceptors increased from 40 in the first year to 547 in 2020 (data as of December 31, 2020; from www.prepthai.net).

2. **Silom Community Clinic @ TropMed:** This project provides both paid PrEP services (approximately 800 baht per month) and free service for volunteers participating in research projects conducted at the clinic. Completed projects which studied PrEP among adolescents and young adults include the YMSM Project, which was conducted in collaboration with the AIDS and STI Division of the Department of Disease Control, Ministry of Public Health. A total of 226 volunteers were recruited during 2017- 2019, comprised of MSM and TG women age 15-29 years. Research sites were in Nakorn Sawan Province, and two sites in Bangkok: Bangrak Na Ratchapracha Institute and Silom Community Clinic. Participating volunteers at the Silom Community Clinic were offered free daily oral PrEP. The results show that the prevalence of HIV infection at initiation of the study was 6 percent, and 30 HIV-negative volunteers (out of the total of 53 volunteers or 57%) at the Silom Community Clinic became PrEP acceptors. Of these, 14 volunteers (from 30 volunteers or 47%) continued to receive PrEP through all six months of the follow-up period. Follow-up during Months 6 to 12 found no new HIV infections, i.e., research sites with PrEP Service (HIV incidence rate = 0 per 100 person-years). For research sites without PrEP service (e.g., the Rainbow Clinic in Nakorn Sawan Province, and the Bangrak Na Ratchapracha Institute) the incidence of HIV infection was 6.7 per 100 person-years.

3. Buddy CU Clinic Project This project was implemented by Chulalongkorn Hospital in collaboration with the Institute for HIV Research and Innovation (IHRI), the SWING Foundation, and the Rainbow Sky Association of Thailand (RSAT). The project provided HIV prevention services and PrEP to adolescent MSM and TG women. This so-called "RAINCOAT Project" was implemented from March 2018 to June 2019.

The project screened 489 adolescents age 15-19 years, and found 27 (6%) who were HIV+. Of 200 HIV-negative adolescents (41%) receiving PrEP services, 73% were still using PrEP at six months. The study measured compliance with the PrEP regimen, and TFV-DP levels. Good compliance with the PrEP regimen was 52 percent during the first 3 months, and decreased to 48 percent at six months of follow-up. During the entire follow-up period, there were no new HIV infections in adolescents receiving PrEP. However, new HIV infections were found among adolescents who discontinued PrEP. Thus, there is a need to focus on HIV testing every 3-6 months among PrEP acceptors. In addition, the prevalence of STIs was as high as 23 per cent in this group of adolescents.

In addition to the Buddy Clinic, there are numerous projects which are studying HIV prevention services such as the P3T, which adapted a mobile phone application that was tested among adolescents in the USA for use with Thai adolescents. There is also the On-Demand PrEP Program, and the HIVST (HIV self-test) Program. There was a recent study of PrEP delivered by service units under the sponsorship of the National Health Security Office (NHSO) during January 2020 - January 2021, with a total of 142 acceptors age 15-24 years.

4. Adolescent PrEP Project (Prototype Study of PrEP Service for Adolescents) by the Child Health Promotion Clinic and Clinic 447 of Siriraj Hospital in collaboration with the Bangkok Health Hub Clinic Path to Health Foundation, TUC, Division of AIDS and STIs, and UNICEF Thailand. This project provided PrEP services to 61 adolescents for 6 months between January 2019 - March 2020, consisting of 15 female and 46 male adolescents (of whom 36 self-identified as MSM).

The project reached out to youth by providing education, counseling, and blood testing for HIV from peer referral, links to social media networks, and digital platforms. The project screened in 967 adolescents who tested negative for HIV. Of these, 104 were considered to be at high risk of HIV infection and interested in receiving PrEP. Following pre-PrEP counseling, 61 (59%) elected to become PrEP users. The prevalence of STIs (gonorrhea, chlamydia, and/or syphilis) was as high as 31 percent at initial screening. The majority of PrEP recipients were adolescent MSM (59%). Of the total who started the program, 49 adolescents (11 females and 38 males, of which 32 were MSM) were followed up for the duration of the period of monitoring (80%).

The project did not detect HIV infection among adolescents during PrEP services. There was no decrease in kidney function, and no thinning of bone mass was found. There were no serious side effects, and the volunteer teenagers attended check-up appointments at a high level. By the end of the project, 31 subjects were interested in continuing on PrEP, and they were referred for on-going PrEP service at the nearest BMA community health center.

5. PrEP services provided by the Institute of HIV Research and Innovation (IHRI) in conjunction with Family Health International (FHI 360), and funded by USAID. The PrEP drugs were provided by the AIDS Research Center of the Thai Red Cross Society and the NHSO. Under the project, the NHSO provided support for Key Population-led health service (KPLHS) in 10 community health clinics operated by civil society organizations, including the Tangerine Clinic by the IHRI, Rainbow Sky Association Health Center (Bangkok, Hat Yai, Ubon Ratchathani), SWING Foundation Health Center (Silom, Saphan Khwai, Pattaya), Caremat Organization Health Center (Chiang Mai), and M Plus Foundation (Chiang Mai, Chiang Rai). The project recruited a total of 6,270 PrEP acceptors during June 2019-December 2020. A total of 531 (8.5%) were under age 20 years. Of these, 438 (82.5%) were MSM, 86 (16.2%) were TG women, and 7 (1.3%) were members of the general population. Only 6.5 percent of study subjects reported side effects from taking PrEP, and these were mild symptoms such as nausea and mild headache. These symptoms resolved on their own within 2-5 days, and there were no reports of discontinuation of PrEP due to side effects. The median (Q1-Q3) of continued PrEP intake among youth was 3 (1.1-8.4) months.

The project examined the effectiveness of PrEP intake, which was determined by taking 4 or more PrEP tablets per week, or taking PrEP only before and after sex (On-demand PrEP) and as prescribed by the PrEP regimen. It was found that the MSM group were 97.9 percent compliant with the PrEP regimen at Month 1 of follow-up, and 100 percent at 3 months follow-up after PrEP initiation. The group of TG women subjects had 90.0 percent compliance with the regimen at Month 1 of follow-

up, and 100 percent at 3 months follow-up after PrEP initiation. These findings indicated that young PrEP acceptors can use PrEP effectively.

6. PrEP2START Project In 2017, the Division of AIDS and STIs of the Department of Disease Control, Ministry of Public Health, together with Thai-US Collaboration developed PrEP2START from a pilot project to provide PrEP services in 2 government hospitals, then expanding to 9 government service providers in 7 provinces, focusing on high-risk MSM and transgender women. The project used a case manager system and a special channel for adolescent-friendly PrEP services.

7. Piman Clinic by the Chiang Mai University Health Science Research Institute. This project has been operating since 2008 as a research clinic, and provides free HIV and syphilis blood testing. PrEP is also available (with a co-pay of approximately 300 baht per month), or free if participating in a research project. Data were collected from PrEP acceptors by means of Computer-assisted self-interviewing (CASI). When Thailand first introduced PrEP in 2014, the HIV incidence at the Piman Clinic was 14 percent, and then dropped to 5 percent by 2018. Risk analysis found that young MSM had twice the risk of being infected. In the five-year period ending in December 2018, more than two-thirds of the clinic acceptors were youth. When analyzing behavior among youth, it was found that those with a history of substance abuse, online dating, being the receptive partner during sex, and having sex more than three times a week was associated with highest risk of HIV. In 2013, the PrEP@Piman Project surveyed attitudes towards PrEP and found that MSM (18-24 years) were 1.8 times more likely to be interested in PrEP than adult MSM. During 2014-17, the PrEP@Piman Project started providing free PrEP pills plus 100 baht travel stipend. Acceptors were asked to return to the clinic for check-ups every 3 months for a one-year period. Of the 105 subjects, 82 (78%) agreed to participate in the follow-up project, with a higher percentage of youth participating than adults. However, gender identity and sexual orientation were not different between participants and non-participants. The most influential factor in the decision to take PrEP was having three or more sexual partners, having a history of searching for sex partners on the Internet, and perceiving oneself as being at risk of HIV. The top three reasons for deciding not to take PrEP were disbelief in the effectiveness of the drug, concern about drug side effects, and not wanting to take medicine every day. Among the volunteers, youth had lower continuation of PrEP than the adults. At the end of one year, 73 percent of the youth acceptors were still using PrEP as prescribed, while 80 percent of adults were still taking PrEP. Two out of five (40%) youth and half of the adults had good compliance with the regimen (4 pills or more a week). During the project, no HIV infection was found. There was detection of decreased kidney function, but values were not less than 20 percent from the baseline. The number of sexual partners and condom use rates were not different from those who did not receive PrEP.

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