



# แนวทางการจัดบริการ ยาป้องกันก่อนการสัมผัสเชื้อเอชไอวี ประเทศไทย ปี 2564

Thailand National Guidelines  
for Pre-Exposure Prophylaxis (PrEP) 2021

แนวทางการจัดบริการยาป้องกันก่อนการสัมผัสเชื้อเอชไอวี ประเทศไทย ปี 2564 ได้ผ่านการตรวจประเมิน  
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## Preface

At the present time, HIV prevalence in Thailand is still unacceptably high in Key Populations. Thus, the government is promoting intensive interventions to reduce HIV incidence, in line with the National Strategy on Ending AIDS 2017-30. Strategy 1 focuses on accelerating the provision of highly effective prevention services to cover the populations with high-risk and in high-risk areas of the country. As part of this effort, the Thai National AIDS Committee has approved, in principle, the policy to promote HIV pre-exposure prophylaxis (PrEP) for populations who cannot avoid short-term risk of HIV transmission.

To be effective, quality PrEP services must be conveniently and equally available to those in need before anticipated exposure to risk. This principle is consistent with the national health security policy that people with risk for HIV be able to access HIV prevention services to reduce new infections and help the country progress toward the Ending AIDS goal. This national policy has support from relevant technical and capacity building agencies.

The Department of Disease Control of the Ministry of Public Health (MOPH) through the Division of AIDS and Sexually Transmitted Infections, together with the MOPH–TUC Coordinating Unit and other related network partners, has continually advocated for a Thai PrEP service policy. Although the effectiveness of PrEP in preventing HIV infection has been recognized internationally, there are still challenges to implementation that require cooperation from all sectors in order to provide effective access to people at risk of HIV to client-friendly PrEP services which conform with the Thai context. The roll-out of PrEP nationwide also requires on-going monitoring and evaluation of service delivery to reduce the gap in service coverage and ensure that PrEP is being used safely and cost-effectively.

In order to consistent provide quality PrEP services, there need to be standard operational procedures to align the actions of service providers. Such a set of guidelines will guarantee that any client can expect the same standard PrEP service wherever they seek it. In 2018, the Division of AIDS and STIs, together with MOPH–TUC Coordinating Unit and network partners, produced the first version of Guidelines for Pre-exposure Prophylaxis for Thai providers. Since then, there have been advancements and new technology in the provision of PrEP. Thus, it is appropriate to update the 2018 guidelines to incorporate these advances. The development of this version of the PrEP guidelines has been through collaborative work and discussions with stakeholders and practitioners to propose improvements so that the Thai PrEP service has optimum reach and cost-effectiveness, and continues to help pave the way to ending the AIDS threat in Thailand, which is the ultimate goal of the policy and program.

Division of AIDS and STIs

Department of Disease Control, Ministry of Public Health

July 30, 2021

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# อภิธานศัพท์

อักษรย่อ	คำเต็ม	ความหมาย
3TC	Lamivudine	ยาด้านไวรัสลามิวูดีน
AHI	Acute HIV Infection	การติดเชื้อเอชไอวีระยะเฉียบพลัน
AIDS	Acquired immunodeficiency syndrome	โรคเอดส์ (กลุ่มอาการภูมิคุ้มกันเสื่อม)
ALT	Alanine aminotransferase	ค่าเอนไซม์ของการตรวจการทำงานของตับ
Anti-HBs	Hepatitis B Surface antibody	การตรวจหาภูมิคุ้มกันต่อเชื้อไวรัสตับอักเสบบี
ART	Antiretroviral treatment	การรักษาด้วยยาด้านไวรัส
AST	Aspartate aminotransferase	ค่าเอนไซม์ของการตรวจการทำงานของตับ

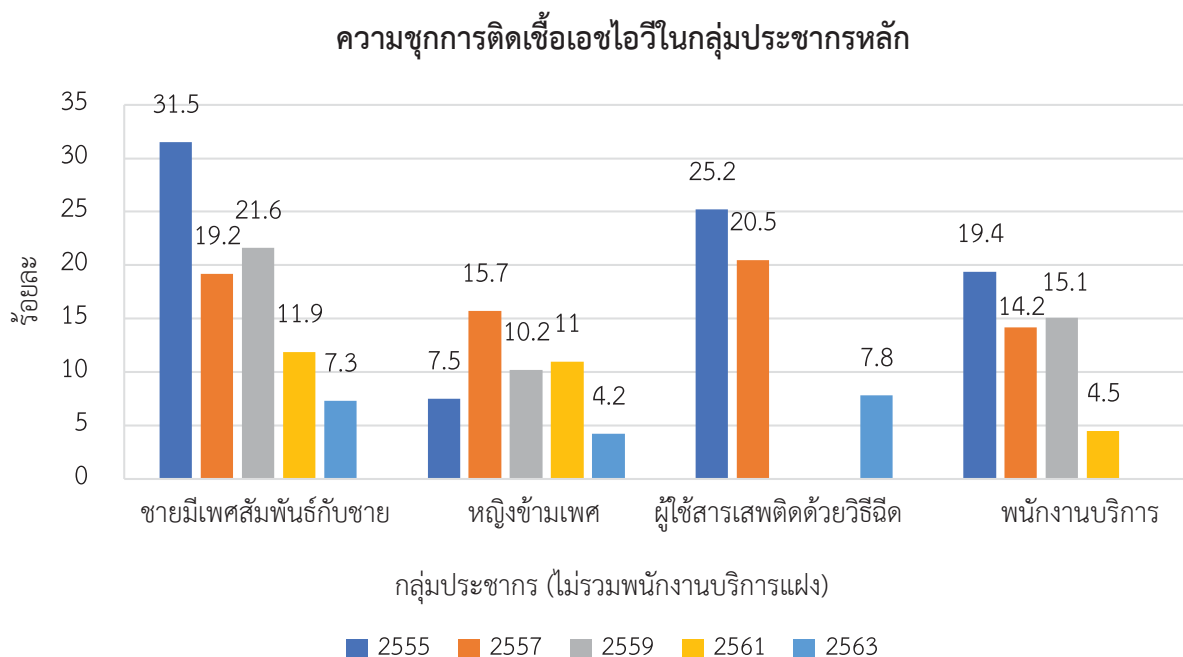
อักษรย่อ	คำเต็ม	ความหมาย	
KPLHS	Key population-led health services	การจัดบริการที่นำโดยกลุ่มประชากรหลัก	
LPV/r	Lopinavir/ritonavir	ยาด้านไวรัสสูตรยารวมระหว่างยาโลพินาเวียร์และยาริทอนาเวียร์	การมีเพศสัมพันธ์
	Mobile PrEP	การจัดบริการ PrEP ร่วมกับการออกหน่วย Mobile VCT	
MSM	Men who have sex with men	ชายมีเพศสัมพันธ์กับชาย	
NAT	Nucleic acid amplification test	วิธีการตรวจหาการติดเชื้อจากสารพันธุกรรม	
NAP	National AIDS Program	ระบบสารสนเทศการให้บริการผู้ติดเชื้อเอชไอวี/ผู้ป่วยเอดส์แห่งชาติ	
NG	<i>Neisseria gonorrhoeae</i>	เชื้อแบคทีเรียที่เป็นสาเหตุของโรคหนองใน	
nPEP	HIV non-occupational post-exposure prophylaxis	การป้องกันการติดเชื้อเอชไอวีหลังการสัมผัสที่ไม่ใช่จากการทำงาน	
NSAID	Non-steroidal anti-inflammatory drug	ยาด้านการอักเสบชนิดที่ไม่ใช่สเตียรอยด์	
	On-demand PrEP	การกิน PrEP เฉพาะช่วง	
	Online booking	การจองคิวผ่านระบบออนไลน์	
PMTCT	Prevention of mother-to-child transmission	การป้องกันการถ่ายทอดเชื้อเอชไอวีจากแม่สู่ลูก	หาแอนติบอดีและ
PEP	HIV post-exposure prophylaxis	การป้องกันการติดเชื้อเอชไอวีหลังการสัมผัส	
PrEP	HIV pre-exposure prophylaxis	การป้องกันการติดเชื้อเอชไอวีก่อนการสัมผัส	
	Pre-test counseling	การให้การปรึกษาก่อนตรวจเลือด	
	Post-test counseling	การให้การปรึกษาหลังตรวจเลือด	
PWID	People who inject drugs	ผู้ใช้สารเสพติดด้วยวิธีฉีด	
RRTR	Reach-Recruit-Test-Treat-Retain	การเข้าถึง-การเข้าสู่บริการ-ตรวจเอชไอวี-การรักษา-การคงอยู่ในระบบ	
	Same-day PrEP	รูปแบบการบริการ PrEP ภายในวันเดียว	
	Serodiscordant couple	คู่มผลเลือดต่าง	
STIs	Sexually transmitted infections	โรคติดต่อทางเพศสัมพันธ์	
	Social harm	ผลกระทบทางสังคม	
TAF	Tenofovir alafenamide	ยาด้านไวรัสทีโนโฟเวียร์แอฟละทีนาไมด์ (ทีเอเอฟ)	
TDF	Tenofovir disoproxil fumarate	ยาด้านไวรัสทีโนโฟเวียร์โดโซพรอกซิลฟูมาเรต (ทีดีเอฟ)	
	Telehealth	รูปแบบการให้บริการทางการแพทย์ทางไกล (โทรเวช)	เพศสัมพันธ์ และ
TGW	Transgender women	หญิงข้ามเพศ	
TUC	Thailand MOPH - US CDC Collaboration	ศูนย์ความร่วมมือไทย - สหรัฐฯ ด้านสาธารณสุข	เอชไอวี
U=U	Undetectable = Untransmittable	ตรวจไม่เจอเชื้อ = ไม่สามารถแพร่เชื้อต่อได้	
VCT	Voluntary counseling and testing	การให้การปรึกษาก่อนการตรวจเลือดเพื่อตรวจหาการติดเชื้อเอชไอวีด้วยความสมัครใจ	
VL	Viral load	ปริมาณไวรัสในกระแสเลือด	
	Window period	ช่วงเวลาหลังจากที่ได้รับเชื้อแต่ยังตรวจหาเชื้อไม่พบ	

## Chapter 1 Introduction

HIV infection is a major problem in Thailand and around the world, affecting overall public health, socio-economic development, and national security. HIV infection is not just a challenge for disease control and treatment. HIV has also exposed fundamental shortcomings in affected societies. For example, the HIV epidemic has tended to bring out negative stigma and discrimination against marginalized populations, and human rights violations against people living with HIV (PLHIV) and other affected people.

In 2020, it is estimated that Thailand had 460,000 PLHIV, with 4,800 new cases in that year, thirty-eight percent of which were among men who have sex with men (MSM).

**Figure 1.1 Prevalence of HIV among Key Populations**



Source: <https://hivhub.ddc.moph.go.th/>

In the past, Thailand has been successful in implementing policies and strategies for AIDS prevention and control. Many important Thai programs have included campaigns to educate the public, promotions for condom use, prevention strategies of mother-to-child transmission (MTCT) of HIV, and provision of affordable antiretroviral therapy (ART) for HIV infection. This effort has resulted in preventing more than two million Thais from being infected and dying from AIDS. In addition to these accomplishments, Thailand has helped pioneer the introduction of HIV pre-exposure prophylaxis (PrEP) in Asia, with a focus on groups with elevated HIV risk (e.g., MSM, transgender women, discordant couples who neglect to use condoms, persons who have difficulty preventing exposure to HIV, sex workers, STI patients and persons who inject drugs, etc.).

There is considerable evidence that taking certain formulations of ARV drugs (e.g., TDF/FTC) can be effective in preventing HIV infection prior to exposure (i.e., PrEP). Studies have found that PrEP can be highly effective in heterosexual couples (78% in the TDF2 Project), discordant couples (90% in the Partners PrEP Project), and MSM (100% in the iPrEx-OLE, IPERGAY and IPERGAY-OLE projects).

In 2021, there were 24,000-25,000 PrEP acceptors in Thailand. This set of guidelines is intended to help programs increase the coverage of PrEP for those in need. The content is based on the latest scientific data and information

from field implementation. It is the expectation that the study and application of these guidelines will help modernize PrEP service as a model for safe administration for vulnerable populations throughout Thailand.

### 1.1 Summary of this version of the national PrEP guidelines

New research findings on PrEP are being published every year. Plus, the HIV risk situation for groups of individuals tends to evolve over time. Therefore, these guidelines cover PrEP initiation, follow-up, and counseling services. Table 1.1 summarizes the fundamental steps in PrEP, while Table 1.2 presents new and emerging issues for consideration. For example, PrEP is recommended in the window period (before HIV infection can be verified) for individuals who are unable to avoid risk. The recommendation for On-demand PrEP for MSM is two PrEP tablets, 2-24 hours before sex. There are also guidelines for daily PrEP to shorten the time it takes for the drug to become effective.

**Table 1.1: Summary of Key Components of the PrEP Guidelines**

Topic	Content
Key drug formulations	TDF/FTC, TDF/3TC or TAF/FTC (TAF/FTC are not to be used with women whose birth gender is female)
Follow-up appointment	Month 0, 1, quarterly
Laboratory examination	HIV at Month 0, 1, quarterly; kidney function (only in groups with risk of abnormal kidney function) Syphilis, gonorrhea, chlamydia, at Month 0, every 3-6 months; hepatitis B at Month 0, vaccination recommended for Hepatitis C at Month 0, and every 6-12 months Pregnancy at Month 0, and every time suspected
Minimum laboratory examination In the event of limitations preventing testing of all samples	HIV Kidney function (only in groups with risk of abnormal kidney function) Monitoring of hepatitis B (HBsAg, only those who have not yet acquired immunity)
Daily PrEP	<b>Every group:</b> The drug level will be sufficient to prevent infection after taking 1 tablet daily for 7 days <b>MSM:</b> The drug level will be sufficient to prevent infection after taking 2 TDF/FTC tablets at the same time (double dose) at least 2-24 hours before sexual intercourse
Discontinuing Daily PrEP	<b>Every group:</b> Take 1 pill a day for 7 days after last sexual intercourse <b>MSM:</b> Take 1 pill a day for 2 days after the last sex
On-demand PrEP: for MSM without hepatitis B infection	Take 2 TDF/FTC tablets at the same time (double dose) 2-24 hours before sexual intercourse. After that, take 1 tablet a day at the same time as the first dose for 2 days after intercourse (referred to as '2-1-1')
Effective use	<b>Every group:</b> Take at least 6 pills per week <b>MSM:</b> Take at least 4 pills per week
PrEP as part of the HIV prevention package	PrEP is part of the continuum of HIV prevention service, including counseling, ART, STI diagnosis and treatment, condom use, and periodic HIV VCT

**Table 1.2 New issues addressed in this version of the guidelines**

Issue	Contentอธิบาย
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Use of PrEP for recent exposure while still in the window period	PrEP can be taken, but emphasize the importance of repeat testing 1 month after starting PrEP
HIV self-testing	Use a standard, quality self-test kit for HIV infection to monitor effective use; in case of lack of access to a 4 <sup>th</sup> generation HIV test with high sensitivity
Cost of PrEP under the NHSO system	NHSO reimburses the cost for PrEP service and related laboratory tests for those who have risk behavior for HIV infection
Use of the TAF/FTC PrEP regimen as an alternative to TDF/FTC	TDF/FTC is not recommended for people with impaired renal function with a glomerular filtration rate (CrCl) < 60 ml/min Therefore, TAF/FTC can be considered as an alternative for those with CrCl > 30 ml/min, applicable to all population groups - - Except for (at-birth female gender) women who engaged in receptive vaginal intercourse, and not used in an on-demand format
PrEP on demand	On-demand PrEP can be administered for MSM without hepatitis B
Initiating and discontinuing Daily PrEP	<ul style="list-style-type: none"> <li>• Reduce the time for discontinuation of daily PrEP from 28 to 7 days after last intercourse</li> <li>• MSM: Start and stop daily PrEP as if on-demand</li> </ul>
Screening and monitoring liver function	Person age < 30 years does not need screening; person age $\geq$ 30 years or has underlying kidney disease (e.g., diabetes mellitus, high blood pressure) at first screening; person age $\geq$ 50 years, person with an underlying condition related to kidney disease; or person with CrCl < 90 mL/min, who should be monitored every 6-12 months
Telehealth models	Added this tracking option from the 1st month onwards to facilitate monitoring, and reduce the spread of the Covid-19
Administering PrEP by KPLHS	PrEP can be administered by trained key populations through qualified community health centers

## 1.2 Objectives of this version of the national PrEP guidelines

1. Establish guidelines for administering pre-exposure prophylaxis so that implementation is up-to-date and consistent around the country
2. Serve as a guide for providing services, counseling, and caring for service recipients properly and appropriately
3. Promote access to HIV-infection prophylaxis for people with risk behavior for HIV transmission

## 1.3 Important components of the guidelines

- The introduction includes the situation of HIV infection among the Key Populations, a summary of PrEP services, and new issues that are addressed in this edition of the national guidelines
- Background and importance of PrEP service provision in Thailand, PrEP service model development, and policy advocacy
- Clinical and laboratory data about PrEP effectiveness in preventing HIV infection by taking PrEP, pre-initiation assessment, and PrEP acceptor follow-up, including guidelines for service provision in case of discontinuation of PrEP
- PrEP service delivery model and related services such as same-day PrEP service delivery, key population-led health services (KPLHS), and PrEP service during the era of Covid-19
- Counseling about PrEP initiation and discontinuation, and key discussion points for receiving PrEP acceptors
- PrEP service provision in specific target groups, e.g., discordant couples, MSM, transgender women, teenagers, pregnant women, and injection drug users

- Creating demand and promoting access to PrEP services for target groups, including communication guidelines, communication strategies, strategies for creating demand and supporting access to PrEP
- Monitoring and evaluation of PrEP service provision, including the Thailand PrEP Service Delivery Monitoring and Evaluation Framework, Thailand PrEP Cascade indicators, roles and tasks in monitoring and evaluation at each level, and resources for tracking the implementation and recording of PrEP services

1. Multi-disciplinary personnel: These are health care providers involved with the provision of HIV prevention and care who also support PrEP service for those in need. These personnel include physicians, nurses, counselors, laboratory staff, pharmacists, and other related personnel in public, private and civil society organizations.

2. Personnel who work to support the operations of relevant agencies: These include staff of the local Provincial Public Health Office, the Disease Prevention and Control Office, and the Institute of Disease Prevention and Control in urban areas, among others.

All of this is in order to acknowledge each sector's contribution, and to encourage collaboration among support services consistent in terms of policies and standard operating procedures, so that service acceptors have convenient access to quality services for the maximum benefit intended.



For over 30 years, Thailand has confronted its HIV epidemic, and the country has been very successful in reducing the spread of HIV through a one hundred percent condom policy, preventing MTCT of HIV, and expanding coverage of affordable ART. This success has been the result of strong collaboration between the government, the private sector, Civil Society, and the network of PLHIV. The trend in new HIV infections has continued to decline. In 2019 and 2020, it was estimated that there were 5,446 and 4,855 new HIV cases, respectively. It is projected that, by 2030, there will be approximately only 2,850 new HIV cases in that year, half of which are among Key Populations and their partners. That projection is consistent with current HIV prevalence estimates by population group, where the higher-risk populations include MSM, transgender women (TGW), sex workers, and people who inject drugs (PWID).

In 2016, Thailand developed an accelerated plan to end AIDS. A key strategy for reducing new infections and AIDS deaths is using ART to prevent HIV transmission (*treatment as prevention*). The key challenge to implementing the strategy is to reach the population in need, and recruit the infected into the ART program as soon as possible to suppress their viral load (Reach-Recruit-Test-Treat-Retain, RRTTR).

Thailand's approach to Ending AIDS during 2017-2030 consists of six main strategies. By 2030, the goal is to reduce the number of new HIV infections to less than 1,000 per year, reduce AIDS deaths to 4,000 per year, and reduce stigma and discrimination related to HIV by ninety percent from 2017. The Key Populations are the priority groups for implementation of the strategy.

However, based on analysis of recent trends and prospects, it appears that Thailand will not be able to achieve the target of reduced HIV incidence in the stated time frame.

Studies have also identified gaps in the coverage of access to proactive prevention services (Reach) and blood testing (Test) in the target population. Thus, unless there is an intensification of implementation, Thailand is at risk of failing in its aim to End AIDS by 2030. Accordingly, Thailand has introduced pre-exposure prophylaxis (PrEP) to enhance HIV prevention among high-risk populations. In addition to promoting condom use for every episode of risky sex, PrEP is an effective component of preventive services in the RRTTR package to reduce new HIV infections and achieve the goal of Ending AIDS in Thailand by 2030.

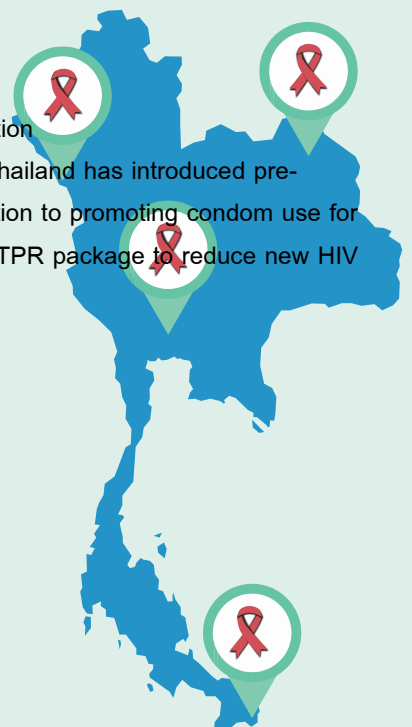


Figure 2.1 History of PrEP Services in Thailand



Study: HPTN 052

Study as part of the program: **Test & Treat for MSM and TGW**

Included in the Thai national HIV prevention guidelines

2017

2016

2015

Review of HIV prevention and treatment guidelines

- Expand the study area and ask for cooperation from all government hospitals provide services. The service recipient is responsible for covering their own expenses.
- PrEP injectable research project in Thailand (HPTN 083)

Dept. of Disease Control collaborates with TUC to implement pilot research in MSM and TGW

2018

2019

2020

2021

Expansion of the pilot project model to 25 provinces

UNAIDS conducts target setting

Pilot addition of PrEP to the benefits package:  
2,000 PrEP acceptors

Expansion of benefits package service:  
5,000 PrEP acceptors

## 2.1 From research to the development of PrEP services

Thailand has been working with other countries to study the efficacy of PrEP since its inception. In many countries around the world, PrEP has been found to be effective and, ever since 2010, has been integrated into many countries' mainstream HIV prevention programs. Key baseline studies showing the efficacy of PrEP that Thailand has participated are as follows:

- iPrEX is an international research program with many countries participating. In Thailand, the iPrEX study was conducted by the Institute of Health Sciences, Chiang Mai University which found that the ARV drug regimen of TDF/FTC reduced the risk of HIV infection among MSM by ninety-two percent.
- The Bangkok Tenofovir Study was conducted in several clinics in Bangkok. It was found that taking the PrEP TDF formula prevented HIV infection among PWID by forty-nine percent.

In addition, Thailand has also participated in research on innovative uses of PrEP, such as the HPTN 083 Project, which is an international research study. In Thailand, the HPTN study was conducted by the Institute of Health Sciences, Chiang Mai University, the Silom Community Clinic, the AIDS Research Center of the Thai Red Cross Society, and the Institute for HIV Research and Innovation. An injectable antiviral drug (cabotegravir) was administered to prevent HIV infection in the initial stages after exposure. Preliminary results indicate that injecting cabotegravir is sixty-six percent more effective in reducing HIV infection than oral TDF/FTC (see Appendix A: Cabotegravir Injection).

## 2.2 Models of PrEP in Thailand

### Community-led Service Model: Princess PrEP

In 2016, the Thai Red Cross AIDS Research Center started the “*Princess PrEP*” project to honor Her Royal Highness Princess Soamsawali Krom Muen Suttanarinath, using the balance of funds from the Mother-to-Child AIDS Reduction Fund (which Her Highness endowed) for the purchase of PrEP. That supply of PrEP was provided for free for up to 1,000 MSM and TGW per year, from January 2016 - December 2018, through community-based organizations. Members of the local MSM/TGW population were trained by the Thai Red Cross Society AIDS Research Center so that they could provide knowledge and counseling to other MSM/TGW at risk of HIV infection. These lay health providers were trained to perform a rapid HIV test right in the home community, and then take those with a positive result to the local clinical facility for confirmation of the diagnosis and enrollment in ART. Those clients who tested HIV-negative could receive a supply of PrEP from the community clinic if they still anticipated unavoidable risk for HIV. As of this writing, there were nine community-led health service centers providing PrEP in six provinces, namely the Rainbow Sky Association Health Center (Bangkok, Hat Yai/Songkhla, Ubon Ratchathani), Swing Foundation Health Center (Silom/Bangkok, Saphan Kwai/Bangkok, Pattaya/Chonburi), Caremat Health Center (Chiang Mai), and MPlus Foundation (Chiang Mai, Chiang Rai).

### **Models of PrEP services in the public hospital setting under the MOPH**

2014: The steps for PrEP services were included in the 2014 Guidelines for HIV Testing and Prevention, and all hospitals were strongly encouraged to prescribe PrEP for eligible clients. At that time, the client had to cover the cost of service out-of-pocket.

2015: The Department of Disease Control, in partnership with the Thailand MOPH–U.S. CDC Collaboration, TUC, conducted a pilot research project on delivering PrEP services for MSM and TGW in two government hospitals. At around the same time, PrEP services were introduced through three community-based organizations. The PrEP2START Project was launched in 2017 using the RRTTPR principle in five hospitals of four provinces. The project was implemented at the field level as well as the policy level. The implementing partners included the relevant government agencies, civil society organizations, and the private sector.

In preparation for PrEP service roll-out during 2018-2019, the Department of Disease Control of the MOPH:

- produced a 2018 version of the guidelines for PrEP in populations at risk of HIV infection;
- increased the capacity of service units nationwide; prepared the service system to receive PrEP acceptors; and helped hospitals develop PrEP service teams through joint training of physicians, pharmacists, and nurses; and
- conducted communication and public relations to build understanding among target service recipient groups and service units that can provide PrEP services in the public, private and civil society sectors; developed educational media about PrEP, including a medication guide tailored to at-risk populations and the general public; called upon local civil society organizations to help educate their constituents who might need PrEP; and a variety of media and channels to maximize convenient access to information about PrEP, and how to get it locally. See the following URLs:  
<https://buddystation.ddc.moph.go.th> and <https://www.facebook.com/buddystation>

### **Policy advocacy for PrEP in Thailand**

The provision of PrEP services in Thailand stems from the policy of the National AIDS Committee (chaired by the Prime Minister). In June 2016, the MOPH issued a request for cooperation to public hospitals around the country to consider providing PrEP services to eligible clients, with the understanding that the cost had to be covered by the client, since PrEP was not yet a part of the public health insurance scheme.

In 2018-19, an academic working group (supported by UNAIDS) conducted an exercise to project the need for PrEP in Thailand as a basis for setting targets and advocating for PrEP. This was an addition to the array of interventions to reduce HIV incidence and help the country reach the goal of Ending AIDS by 2030. The estimates suggested that, by 2020, there would be 143,948 people who needed PrEP in Thailand, comprised of 117,984 MSM, 9,209 TGW, 14,021 PWID, and 2,734 sero-

discordant couples. The Thai government then used the projections data as a basis to set goals and conduct advocacy to implement PrEP nationwide.

At around the same time, a study was conducted on the economic cost-effectiveness of PrEP services by the Health Intervention and Technology Assessment Program (HITAP) which concluded that they were economically cost-effective. When assessing cost-effectiveness in conjunction with the goal of ending AIDS by 2030, PrEP services in all risk groups are considered cost-effective because PrEP can help reduce the HIV incidence to less than 1,000 cases per year.

Based on the information about PrEP requirements and the results of such studies, advocates were able to persuade the National Health Security Board to include PrEP in the benefits package of the Thai universal coverage scheme (i.e., national health insurance). The National Health Security Board Meeting No. 6/2019 resolved to approve the inclusion of PrEP in the national insurance system, but stipulated that a pilot project first be conducted among the high-risk groups. In addition, the Board resolved that there be an intensive monitoring and evaluation system to track experience in the use of PrEP, and estimate HIV incidence reduction. The results of the pilot phase would then be the basis for deciding whether to expand PrEP availability throughout the country. The pilot study was carried out in 2020 by the AIDS Division of the Department of Disease Control and its network, with the support of UNAIDS and the Global Fund (GF).

The pilot project looked at the experience of 2,000 acceptors of PrEP (free of charge). A total of forty-nine service providers from twenty-one provinces (in both the public and private sector) participated in the pilot project. In 2021, the target quota of PrEP acceptors was increased to 3,000 people, with a total of 154 service units joining the pilot study in fifty-six provinces across the country. During the entire pilot study, the total number of PrEP acceptors was 11,925 persons. However, that total accounted for only 8.3 percent of the estimated target of potential acceptors. Thus, it was assumed that there must be a gap between demand for PrEP and those who obtained it. Accordingly, the national program implemented measures to increase awareness, motivation and access to PrEP.

In addition to Thailand, many other countries have supported the use of PrEP for people at risk of contracting HIV, and have studied the effectiveness of PrEP at the population level. The following are some highlights of that experience outside of Thailand:

- A recent U.S. study by Smith et al, using data for 2012-16 from the U.S. National HIV Surveillance System, found that, of the ten states where coverage of PrEP was broadest, the annual HIV incidence decreased by four percent (95% CI [95% CI]: -5 to -3). When controlling for viral suppression variables in thirty-three areas, there was a 1.3 percent reduction in number of new cases of HIV per year for each additional 100 PrEP acceptors. It was concluded that expanding PrEP coverage could reduce the rate of new HIV infections.

- Likewise, a Scottish study by Estcourt et al, using data on MSM from 2015-19, found that, after introducing PrEP widely, the incidence of HIV infection dropped 0.6-fold (95% CI: 0.4 to 0.9) as compared to before PrEP was available. When considering PrEP only, the incidence of HIV infection was 0.2 times lower (95% CI: 0.1 to 0.7) as compared to before PrEP was administered. It was concluded that PrEP reduced the incidence of HIV infection at the population level.