# SOCIAL CAPITAL AND ACCESS TO ANTIRETROVIRAL THERAPY IN THAILAND

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# ABSTRACT

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| **Title of Dissertation** | SOCIAL CAPITAL AND ACCESS TO ANTIRETROVIRAL THERAPY IN THAILAND |
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This research on social capital and access to antiretroviral therapy in Thailand was conducted using quantitative methodology. The objectives of this research were to study the relationship of social capital with the influence of antiretroviral therapy in Thailand and to analyze the benefit incidence of access to antiretroviral therapy among populations with different income levels in the national health insurance system. The data were collected on antiretroviral drug recipients in 13 medical service areas of the National Health Security Office covering all regions of Thailand. A stratified sampling method was used for a sample of 665 people. The results showed that social capital was statistically associated with access to antiretroviral therapy. Participation in bridging and bonding networks has therefore influenced the rate of HIV drug access among HIV-positive people. Government sectors should therefore promote more social capitalization processes while raising the right attitude towards people living with HIV. In the analysis of the distribution of the benefits of using government budgets to support access to antiretroviral drugs, it was found that the Universal Health Coverage (Gold Card or 30-baht for all diseases) is more beneficial for the poor (pro-poor). However, it is interesting that all groups, whether they are middle-income groups, high-income, and highest-income groups, also benefited, while the fifth (highest-income) benefited comparatively more from this privilege than others. Therefore, policymakers may review the issue of medical treatment rights and the allocation of expenditure budgets in order to distribute benefits more directly to target groups by The poor registration data was linked to the hospital data able to produce tangible results of the policy.

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# CHAPTER 1

# INTRODUCTION

## 1.1 Background and Significance of the Research

AIDS was first identified in June 1981 in the United States (HIV.GOV, 2021). It is the world's most impacting health problems and its longevity has been decades (Our World in Data, 2021). The total cumulative deaths from the outbreak to 2019 reached 32.7 million (UNAIDS, 2020b). Recently, the 37.9 million people living with HIV have access to antiretroviral therapy only at 23.3 million individuals, while 14.6 million people do not have access. Therefore, the issue of access to antiretroviral drugs is a global crisis (Timmermann & Belt, 2013) which is ranked as one of the world's top priorities (Desmonde et al., 2018). The AIDS problem is consequently one of the major problems that are constantly being attempted to cope with around the world. Moreover, it is included as a goal of the Sustainable Development Goals (SDGs) (UNAIDS, 2018a). Further, the 2016 Political Declaration on Ending AIDS in June 2016, by the UN High Council, set a goal to end AIDS by the end of the year of 2030 (UNAIDS, 2020a). More than four decades of critical goals of ending AIDS have resulted in efforts to devise a therapeutic approach. Until now, scientific evidence has indicated that antiretroviral therapy (ART) increases the body's immune system, thereby reducing the chances of people living with HIV from AIDS. This increases the likelihood of further treatment and reduces the severity of the disease (Azetsop & Diop, 2013) , resulting in longer life expectancy for people living with HIV (Panupak, 2012). It can also reduce transmission to others (WHO, 2011). Therefore, governments around the world are trying to formulate policies for people in their countries to have access to antiretroviral therapy as much as possible in order to maintain human resources, which is important to the country's development.

Thailand is one of the leading developing countries in setting up policies for people living with HIV to access antiretroviral drugs (World Bank & UNAIDS, 2003) beginning with the introduction of an antiretroviral therapy program in 1992 with the drug Zidovudine (AZT) (Ministry of Public Health. Department of Disease Control Office of AIDS Tuberculosis and STDs, 2004). Since then, there has been continuous development of the policy until it was able to formulate a policy for HIV and AIDS patients to have access to free treatment for all rights of medical treatment, also known as universal healthcare coverage, and then it was developed into a policy for HIV antiretroviral therapy without determining immunity or white blood cell counts.

However, in the early stages of antiretroviral therapy entering the Thai healthcare system, the proportion of access to antiretroviral therapy was limited. In the years 2000 to 2001, the quota for antiretroviral therapy was only 3,000 infected people distributed in 109 hospitals, but at that time there were people living with HIV (PLHA). at a count of 654,782 but only 1,710 received ART (Center for the Development of Antiretroviral Drug Services for HIV-infected and AIDS Patients in Thailand, 2010; Thai Hospital Pharmacy Association, 2006; World Bank & UNAIDS, 2003). This accounted for only 3.8% of all HIV-infected people, resulting in 55,531 deaths in the year 2000 (National Center for AIDS Management, 2017).

Later, after the Thai Pharmaceutical Organization was able to produce the antiretroviral therapy in 2002, which was known as the "antibody era," the drug became significantly cheaper. Therefore, people have more access to such drugs as Efavirenz tablets 600 mg, from the original price of 1,000 baht per bottle to only 180 baht. There were about 80,000 people that accessed this drug (Thai Post, 2018). It was Thailand's first antiretroviral therapy and the only country in Southeast Asia that has received the WHO Prequalification Program (WHO PQ) from the World Health Organization (WHO) (Pharmaceutical Organization, 2018). At that time the National Health Security Act of 2002 was enacted, and the "National Health Security Office (NHSO)" was established as a responsible agency to act as a “representative” of the people in determining benefits and being a representative in protecting and caring for people to receive equal quality and efficient services as an important goal. Dr. Sanguan Nittayarumpong was appointed as the first secretary-general of the NHSO (National Health Security Office, 2020).

Since 2006, the National Health Security Office has been responsible for preparing a budget, and distributing services to people living with HIV and AIDS, including financial support for antiretroviral drugs to be distributed to various hospitals located in public health service areas across the country. This was a result of the policy created by Dr. Thaksin Shinawatra as the administrator, which was set the policy of accessing HIV antiretroviral therapy to be included in the universal health insurance system. Access for HIV-infected people and their patients to HIV antiretroviral drugs significantly increased, from 95,620 in 2006 to 196,828 in 2009. In 2018, during the government of General Prayut Chan-o-cha, 385,772 infected people received antiretroviral drugs (National Health Security Office, 2018a)

from reported cases of HIV in Thailand. UNAIDS approximately 480,000 (UNAIDS, 2018b). The positive impact on access to antiretroviral drugs has also resulted in a reduced proportion of deaths. In 2001, there were approximately 57,000 deaths caused by AIDS. In 2005-2006, according to the results of the change in policy in terms of accessing treatment in universal health coverage, the number of deaths dropped from 45,000 in 2005 to 37,000 in 2006. After the change in policy where everyone had access to treatment in terms of all rights, whether it was the right to universal health insurance (30 baht for all diseases)/national health insurance social security rights, and the rights of civil servants/state enterprises, this has also impacted the number of AIDS-related deaths after taking antiretroviral drugs from 31,000 in 2007 to 18,000 in 2018 (UNAIDS, 2018b).

However, the point of interest in Thailand's access to ART is the number of people living with HIV compared to the number of people receiving ART. Overall, though, there has been an increase in antiretroviral therapy, but considering the percentage of access to antiretroviral drugs since it was prescribed to people living with HIV in 2006, only 17.61% have had access to the antiretroviral therapy. The government has formulated a policy that Thai people can have free blood tests twice a year in public hospitals, and free antiretroviral therapy for all treatment rights regardless of white blood cell (CD4) value (Ministry of Public Health. Department of Disease Control Office of AIDS Tuberculosis and STDs, 2004) . Still, only 59.62% have access to antiretroviral drugs. Until the government formulated the National

Strategy on Ending AIDS from 2017 to 2030, the number of people having access to ART increased to 73.73% in 2017 and 80.36% in 2018 (Figure 1.1).

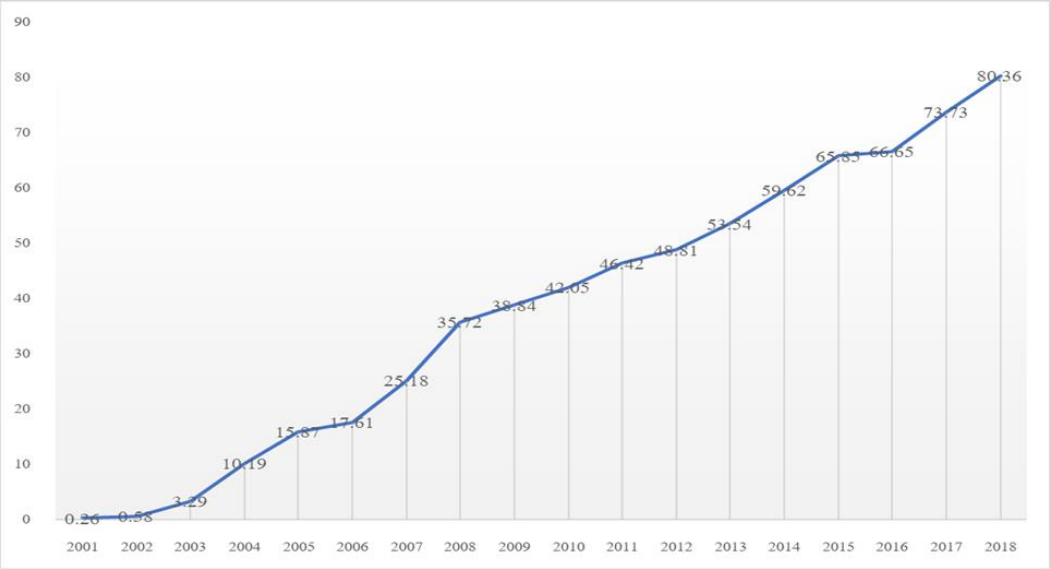


Figure: 0.1 Percentage of Access to HIV Antiretroviral Drugs 2001-2018
Source: National Center for Management of AIDS Problem (2017),
National Health Security Office (2020).

The data above show that although the government has a program to promote free access to ART, the number of people that have access to ART is not as large as it should be. Therefore, it is possible that people's access to ART may not only be a consequence of government policy but may also have other elements.

Based on this assumption, the relationship between the elements affecting access public services was studied and it was found that one of the most important factors was “social capital.” This term was defined by Putnam (D. R. Putnam, 1993), where social capital refers to aspects of social organizations such as trust, norms, and networks that can improve the efficiency of society by co-ordination. Subsequently, several studies were conducted to study. The relationship between social capital determinants and HIV was studied by Musanse, Charalanbous & Neison (Musanse, Charalanbous, & Neison, 2017), who examined the relationship between social capital and HIV treatment outcomes in South Africa. In this research, the definition and

measure of social capital extended the definition given by Putnam (D. R. Putnam, 1993). It was stated that it could be measured by the number of groups participating in group diversity, the number of friends, trust, level of trust, etc. The results of this study revealed that increased social capital had a better effect on treatment outcomes. That is, as social capital levels increase, treatment outcomes improve, and patients with high social capital are more likely to go into a confident treatment. Individuals with middle and higher social capital were at less risk of treatment failure than those with lower social capital because the patients that can overcome the illness are encouraged by members of their networks and groups and received advice on diet and exercise. This work is consistent with the work (Lan et al., 2016), who studied social capital and the quality of life of people living with HIV in southeastern China. The measuring of social capital based on the trust of neighbors revealed that general frequency of contact with family, friends, neighbors, and involvement in organizations, which was the social capital, had the greatest influence on both the physical and mental health of people living with HIV. People with lower social capital were seen to have lower physical and mental qualities than those with higher social capital. This was due to the frequency of contact with family, relatives, and the number of close friends. Colleagues and neighbors are important for improving mental quality. The healthcare contributors may have greater trust in the organization of services and access to resources than less engaged individuals.

In addition to research confirming that social capital influences the importance of antiretroviral therapy, (Binagwaho & Ratnayake, 2009) investigated the role of social capital in successfully implementing or prioritizing antiretroviral therapy in Africa. The study revealed that between the late 1990s and early 21$^{st}$ century, health officers in the Western world believed that Africans would not follow antiretroviral therapy (ART) because the population was uneducated and illiterate. However, the study found that this is not so; Africans overcome economic difficulties by begging or borrowing family money or getting help from friends to get antiretroviral drugs. The patients that did not have enough money and were willing to spend more on traveling to clinics for treatment appointments than buying food even agreed to walk to the clinic to get antiretroviral drugs despite the long distance. Consequently, the results of the study demonstrate the importance of social capital, and that the relationship

between family members and friends has an influence on the successful implementation of antiretroviral therapy in Africa. Consistent with Campbell (Campbell et al., 2013), informal local networks include neighbors, families, and formal networks, including churches, women's groups, and women's groups, which contribute to promoting access to public health services and care for people living with HIV. This is because community-based networks provide opportunities for discussion on HIV and AIDS. The severity of HIV is discussed and personal experiences with HIV/AIDS are exchanged within the community as well in order to promote the formation of a common action plan. Thus, this created unity in the community's management of HIV/AIDS.

The findings follow Alvarez & Romani(2017), who stated that network members benefit from networks with access to resources and from direct access to what is useful. The fact that people living with HIV join social networking groups means that there are interactions among them. They exchange information, which makes them aware of a variety of information that provides them with access to resources and benefits more than those that are not members of the social network. The above points show that social capital influences both the outcomes of treatment, access to antiretroviral therapy, and the promotion of access to healthcare. The study of social capital and access to healthcare is of great interest in Thailand. In particular, social capital theory is used to test whether it influences access to antiretroviral drugs in Thailand or not. This is because when considering the percentage of access to antiretroviral drugs since the introduction of the universal health coverage, the share of access to ART has not increased as quickly as expected but has gradually increased despite the government's policy that all Thais have access to free treatment. Therefore, there may be other factors affecting access to ART, and social capital might be the answer. However, the theory has never been put to the test regarding the aforementioned issue in Thailand. This research is therefore the first to put the theory of social capital to the test. The analysis is based on the concepts of Putnam and Goss (2002), World Bank (2002b, 2004b), Asian Barometer Survey (2014), and World values survey (2012). The analysis was divided into trust or social capital analysis, and participation in social networks and whether they influence access to ART. The above points show that social capital influences both the outcomes of treatment,

antiretroviral therapy, and the promotion of access to healthcare. The study of social capital and access to healthcare is of great interest in Thailand. In particular, social capital theory is used to test whether it influences access to antiretroviral drugs in Thailand. This is because when considering the percentage of access to antiretroviral drugs since the introduction of universal health coverage, the share of access to HIV antiretroviral drugs has not increased as quickly as expected but has gradually increased despite the government's policy that all Thais have access to free treatment. Therefore, there may be other factors affecting access to antiretroviral drugs, and social capital might be the answer to that. The results may be similar to previous socially funded HIV studies abroad. However, the theory has never been put to the test in the aforementioned issue in Thailand. This research is therefore the first work to put the theory of social capital to the test. The analysis was based on the concepts of Putnam and Goss (2002), World Bank (2002b, 2004b), the Asian Barometer Survey (2014), the World Values Survey (2012). The analysis was divided into trust, participation, and social network whether it influences access to antiretroviral drugs. Social trust consists of general trust, individual trust, institutional/public health trust. Social network analysis is an analysis of bonding social networks and bridging social networks. From all the conceptual frameworks and research involved, the researcher therefore developed a framework for analyzing social capital and access to antiretroviral therapy in Thailand for the main objectives of this research.

In addition, considering the expenditure on budgets related to HIV-infected people and AIDS treatment in Thailand, it was found that the government has been allocating more money, but the distribution of benefits is unclear. How the benefits fall to people of any economic status, including the issue of different healthcare rights of the people, and the transferring benefits to those who are entitled to treatment according to their rights or not.

Another important point of the research is to analyze the distribution of benefits of the policy to promote access to antiretroviral drugs in Thailand. This is because policies promoting access to antiretroviral drugs are considered a type of public policy where some public policies may not cover all intended audiences, including access to antiretroviral drugs. Although the goal of the policy is to ensure that all Thai people have access to universal antiretroviral therapy, the real situation

may likely be the same as some other policies, which is to ensure that the benefits are more directed to the socially disadvantaged than those with higher social opportunities

Considering the government expenditures on the prevention and treatment of AIDS problems since 2008, it was found that there is a trend that has continued to increase from 6,928 million baht to 9,267 million baht in 2018 (National AIDS Committee, 2018). Combined, over 11 years (2008-2018), Thailand spent 92,056 million baht on AIDS. According to the Thailand Ending AIDS 2018 report, action on AIDS per capita per general population averaged at 109-155 baht per person, but those living with HIV have a high cost of 13,010 to 20,594 baht per person, accounting for 1.4-2.3% of health expenditures on public health. The focus is largely on HIV and AIDS care, especially on the cost of antiretroviral therapy (International Health Policy Office Ministry of Public Health, 2015).

The National Health Security Office has allocated the (2016) budget for antiretroviral care and related services amounting to 2,769,401,000 baht (National Health Security Office, 2015). In 2017, 3,122,408,000 baht was allotted, and 2,811,901,000 baht was allotted for HIV antiretroviral therapy and related services (National Health Security Office, 2016). In 2018, 3,218,2496 baht was the total allotted and as a budget for use as antiretroviral care services and several related services it was 2,952,249,600 baht (National Health Security Office, 2017).

The aforementioned budget expenditure has been allocated to the National Health Security Office to cover the costs of providing services to people living with HIV and AIDS in terms of ART and related medical services in having been distributed to various hospitals. There are 13 districts in the National Health Security Office, consisting of the National Health Security Office Region; Chiang Mai, Region 2; Phitsanulok, Region 3; Nakhon Sawan, Region 4; Saraburi, Region 5; Ratchaburi, Region 6; Rayong, Region 7; Khon Kaen, Region 8 Udorn Thani, Region 9; Nakhon Ratchasima, Region 10; Ubon Ratchathani, Region; 11 Surat Thani, Region 12; Songkhla, and Region 13; Bangkok. The objective is to provide people with access to public health services as much as possible. However, the benefits that people receive from the allocation of public expenditures do not mean that every benefit allocation will fall to the same people in every household, regardless of their economic status,

rich or poor. There are some types of public expenditure that benefit only the wealthy households rather than the poor ones (Buracom, 2015).

A theory frequently used in analyzing the role of states in public health is Benefit Incidence Analysis (BIA) (Demery, 2000). In this study, a framework was used to analyze the distribution of benefits of accessing antiretroviral drugs in Thailand. The benefit distribution analysis theory of Mcintyre and Ataguba (2011) raises the question: “Who among populations of different socioeconomic status benefit from public health expenditures?” An analysis of this framework reveals to what extent households in different income classes benefit from government spending (Buracom, 2013). Most of the research involved in the Benefit Incident Analysis focused on the analysis of public policy or expenditure on education and health. The in-depth analysis of a specific disease policy or expenditure has quite a few especially on antiretroviral theory. Although this policy is very important both for its impact on people's quality of life and on the rising budget, a theory frequently used in analyzing the role of states in public health is the Benefit Incidence Analysis (BIA) (Demery, 2000). In this study, a framework was used to analyze the distribution of benefits of accessing antiretroviral drugs in Thailand. The benefit distribution analysis theory of Mcintyre and Ataguba (2011) raises the question: “Who among populations of different socioeconomic status benefit from public health expenditures?” An analysis of this framework reveals to what extent households in different income classes benefit from government spending. Any (Buracom, 2013). Most of the research involved in benefit distribution analysis focused on the analysis of public policy or expenditure on education and health, as well as in-depth analysis of specific disease policy or expenditure. There have been relatively small expenditures on antiretroviral drugs, although this policy is very important both in terms of its impact on people's quality of life and on the rising budget. There is also a study by the Thailand Development Research Institute (Thailand Development Research Institute, 2014), researching economic reforms for social justice conducted on the distribution of benefits from important government projects to people in various economic groups. It was found that the estimates of the distribution of benefits from public health spending showed a tendency to, especially well-off groups. The upper 20% of society benefits from public healthcare expenditures more than any other group. Consistent

with Buracom (2011), the majority of Thai health expenditure allocations fall according to household income; public health expenditure on health services is higher than pro-rich households.

Regarding the research on the Benefit Incidence analysis of HIV antiretroviral access, it was found that some studies abroad, such as the work of Onwujekwe et al. (2008), have found that the distributing benefit of the cost of access to HIV antiretroviral drugs largely depends on people living in cities rather than rural areas, and the poorest and women benefit the most. A study by Tran (2016), an analysis of benefit distribution vs. HIV antiretroviral therapy, found that the rich benefited more than the poor, while the poor benefited greatly in the early stages of treatment even though to the concept of distribution of benefits government spending, the target government for public or social services is poor (Buracom, 2016; Estrada, Lee, & Park, 2014; Younger, 1999) in order to reduce income inequality.

Regarding the benefit distribution analysis of access to antiretroviral drugs in Thailand, the United Nations Development Programme (United Nations Development Programme, 2017) studied The Journey of Universal Access to Antiretroviral Treatment in Thailand. It was found that the Universal Health Coverage has been in place since 2002 to enable people that are economically poor to access healthcare and benefit from universal health coverage, and universal health coverage also covers the financial risks of medical care for both the rich and the poor. The rich benefited while the poor benefited more, even if the government wants to distribute that benefit more to the poor. The study was merely an analysis of different income groups and the overall health benefits of having universal health coverage. However, the analysis of different types of entitlements in universal health coverage was not presented to determine the benefits or benefits of each income class.

For this reason, there is a gap in the study that should analyze the distribution of the benefits of access to antiretroviral therapy in Thailand through analysis of different types of healthcare rights under the national health insurance system. This will be important for obtaining a clear answer concerning which government's large budget is allocated to antiretroviral drug access policies. Will people of different economic backgrounds with different rights to healthcare receive different benefits? The outcome of the policy will benefit which groups of people? If such results are

known, it will make the government or agency that determines the policy decision maintain the policy and grant the right to treatment for people of all backgrounds. Should treatment rights be the same or should only the poor be entitled to free treatment and how should the next policy be designed.

## 1.2 Research Questions

1) Does social capital factors influence access to antiretroviral therapy?

2) Access to antiretroviral therapy among populations with different income levels in the national health insurance system, to which demographic groups, and how the benefits fall?

## 1.3 Research Objectives

1) To analyze the relationship of social capital and its influence on access to HIV antiretroviral drugs in Thailand

2) To analyze the benefit incidence of antiretroviral access promotion policies among populations with different income levels in the National Health Security System.

## 1.4 Scope of the Research

1) Research Methodology

This dissertation is based on quantitative research (Quantitative Research) by using questionnaires to collect the data. A total population of 331,397 HIV-infected individuals registered and taking first-line ART was randomized from the HIV Service Information Service Database of the National Health Security Office (NHSO) in 13 regions. A total of 665 samples were randomly selected and statistically processed to describe social phenomena related to accessing antiretroviral therapy in Thailand using descriptive statistics analysis, such as number, percentage, mean, standard deviation, minimum value, maximum value, and inferential statistics analysis (ANOVA) and multiple regression analysis.

The scope of the study is specified as follows.

The study on social capital and access to ART in Thailand used a key analysis framework that included the following: Putnam's concepts Putnum (1993) and World Bank (2002b, 2004b), the Asian Barometer Survey (2014), the World Values Survey (2012) Nishide (2009, as cited in Lin, 2008) , and OECD (2020). It was possible to synthesize the conceptual framework of social capital, including social trust (public trust, individual trust, and trust institutions or public health agencies, including joining the connected network and the bond network on the influence on HIV antiretroviral access/decision to go for ART. This was designed in order to answer the first objective.

Regarding the Benefit Incidence Analysis, Mcintyre and Ataguba 's Benefit Incidence Analysis (Mcintyre & Ataguba, 2011) was applied as a framework for analyzing the differences in socioeconomic populations with the benefits of ART by using a framework for dividing income according to economic principles into five quintile classes. Each income class was divided into equal amounts, which was 20%; namely group 1: lowest income, group 2: low income, group 3: middle income, group 4: high income, and group 5: highest income. The Benefit Incidence Analysis was analyzed according to the rights of treatment of people living with HIV.

This research aimed to study the public health service areas of the National Health Security Office in all districts covering the entire country, with a total of 13 districts/service units, consisting of Region 1): Chiang Mai, Region 2): Phitsanulok, Region 3): Nakhon Sawan, Region 4): Saraburi, Region 5): Ratchaburi, Region 6): Rayong, Region 7): Khon Kaen, Region 8): Udorn Thani, Region 9): Nakhon Ratchasima, Region 10): Ubon Ratchathani, Region: 11): Surat Thani, Region 12): Songkhla, and Region 13): Bangkok. The severity varies from area to area. As a result, the government has allocated a budget to the National Health Security Office, which is an agency that has a public health service unit and has set up a coordinating agency between hospitals across the country called the Office of District National Health Insurance. There is a total of 13 districts covering all regions of the country. Therefore, HIV-infected people, regardless of the province of Thailand, are entitled to such treatment. All regions have registered HIV/AIDS patients and have been taking

antiretroviral therapy. The data have been recorded in the database of the National Health Security Office in all 13 regions as well.

In addition, the area has HIV-infected in all regions and is eligible for treatment under the National Health Insurance covering all three types of National Health Security Rights; social security rights, and welfare rights for civil servants/state enterprises, where the government has allocated a budget to distribute the benefits of treating HIV and AIDS patients to various areas proportional to the number of HIV/AIDS patients registered and taking ART in hospitals. Therefore, this research has determined the scope of study areas according to the public health service areas of the National Health Security Office in every region.

However, this study focuses only on HIV-infected people that have entered the treatment regimen or that have enrolled in treatment in the National Health Security System in 2019, consisting of social security rights and welfare rights for civil servants/state enterprises that determine the right to only Thai citizens with 13-digit ID card numbers to receive medical treatment rights. This research did not study those groups that did not register for the treatment system because they are not able to consider who and where they live. Therefore, this is considered a limitation of the research in terms of collecting data. However, for those infected with HIV that had entered the treatment system, it will be possible to recognize them because they have received antiretroviral therapy at various hospitals according to the date and time when their doctor had made an appointment.

## 1.5 Expected Benefits of the Study

### 1.5.1 Academic Aspects

This research has integrated the theory of social capital. which is a sociological theory, in order to analyze access to public services. It can create academic benefits in terms of studying the concept of development, management, and access to government services through studying guidelines for building social trust and joining social networks, as well as being a base for the management of public affairs in the network format. It can also be used to synthesize the socio-economic variables and factors affecting policy implementation, which are the main issues of

research in public administration. It may also be applied to study the same subject in Thailand or other countries, and can be used to study the promotion of access to health services in other areas as well.

This research may be one example of the application of the Benefit Incidence Analysis to analyze policies or other public expenditures, which is one of the important concepts of public administration. It is confirmed that the concept of Benefit Incidence Analysis still is an analytical framework and is useful to the academic community.

### 1.5.2 Policy Implications

The Ministry of Public Health of Thailand and the government can use the data on the effect of social capital on access to antiretroviral therapy in order to determine measures, projects, and programs to make ART more accessible to patients, especially regarding the promotion of social capital factors, whether they make people with HIV and AIDS patients trust the general public, including building more trust in public health personnel and encouraging participation in more social networking groups. This will result in greater access to ART for infected people.

The Ministry of Public Health, as well as the government, could have the analytical academic data from a variety of sources on access to treatment to be used in decision-making to continue the project as before, modify or terminate the policy again the Ministry of Public Health, including the government, was informed that do the populations of different income levels have accessed to government-required free ART policies? In addition, the government may review healthcare rights and budget allocations aimed at the poor by separating the rich and the poor. Moreover, it should be allocated especially to the poor to help reduce the problem of economic and social inequality and can save the government's budget, as well as expand the social security system to cover informal workers. This will result in another way to reduce the budget allocation of the Universal Healthcare Coverage Fund.

# CHAPTER 2

# LITERATURE REVIEW

This chapter reviews the concepts, theories, and research related to the study of social capital and access to antiretroviral therapy in Thailand, with the presentation covering the following topics:

2.1 The concept of access to public health services

2.2 Policy developments promoting access to antiretroviral therapy in Thailand

2.3 The concept and theory of social capital

2.4 The concept of benefit incidence analysis

2.5 Related research

## 2.1 Concept of Access to Public Health Services

### 2.1.1 The Importance of Access to Public Health Services

The World Health Organization defines “access” according to several dimensions, including physical access, economic access and affordability, and access to information. Regarding the definition of physical access, it is the availability of good health services, the appropriate accessibility of those in need, and proper opening and closing times, including the appointment system and other aspects of the organization providing services and delivery, providing services to the recipient when they need it. Economic accessibility and affordability refer to people's ability to pay for services without financial hardship. Not only is the cost of healthcare services taken into account, but also indirect costs and opportunity costs. The last dimension of access is access to information. This means the right to seek information, obtain information, impact information, and ideas about health issues. Access to information should not impair the right to privacy and confidentiality (WHO, 2021a).

Access to healthcare or health services is central to the performance or efficiency of healthcare systems around the world (Levesque, Harris, & Russell, 2013), while rights to health and access to essential medicines are universally recognized as fundamental principles of accountability (The Global Network of People Living with HIV, 2013). Inequality in access to healthcare is seen as a government failure and can lead to lawsuits in courts in both countries and the World Court (The Global Network of People Living with HIV, 2013).

However, at least half of the world's population does not receive the health services they need. Each year around 100 million people are driven into poverty due to self-employment health spending (WHO, 2021b). Additionally, more than two billion people in low- and middle-income countries lack access to medicines because they are expensive. It is estimated that 25-50% of private and public health expenditures are spent on medicines (The Global Network of People Living with HIV, 2013). The issue of access to healthcare services is not only an individual issue or a domestic problem, but it has also become a public concern around the world. For example, in January and May 2003, the ministries of health of Chile, Germany, Greece, New Zealand, Slovenia, Sweden, and the United Kingdom met in Stockholm and London. The theme of that international conference was on issues related to access to healthcare services. The conclusion of the conference was the need for governments to ensure that the citizens of their countries have equal access to health coverage and access to good healthcare systems (Oliver & Mossialos, 2004). It is a prerequisite for achieving the development goals, and the world's commitment to achieving them (The Global Network of People Living with HIV, 2013).

For this reason, the World Health Organization has tried to encourage countries around the world to have universal health coverage in their own countries. Because universal health coverage guarantees that all citizens have access to the health services they need anytime, anywhere without financial hardship, including a comprehensive range of essential health services, including health promotion, prevention, treatment, rehabilitation, and palliative care (WHO, 2021b). Access to primary care, which is critical to the preservation of human resources, is also a human rights issue, including access to antiretroviral therapy.

### 2.1.2 Access to Antiretroviral Therapy

Access to antiretroviral drugs for HIV is not taken very seriously in many poor countries. Because the drugs are so expensive, the government has little power to provide people with access to treatment (Chaudhury, 2000). As the problem has affected the lives of people around the world, many countries have become more aware of its importance. There are ongoing efforts around the world to ensure that the people in their countries have access to antiretroviral therapy. In July 2001, the United Nations Declaration on HIV/AIDS was announced in New York, stating that people with HIV should have access to antiretroviral therapy (Grangeriro, Teixeira, Bastos, & Teixeira, 2006) because antiretroviral therapy in Western countries is considered part of standard of care (Chaudhury, 2000).

Additionally, since 2001, there has been clinical evidence and the emergence of five new antiretroviral drugs, which the World Health Organization has designated as a guideline for the treatment of people living with HIV or AIDS in countries around the world, especially low- and middle-income countries. This has resulted in those countries in the past decade achieving increased access the treatment. By the end of 2013, more than 11.7 million people living with HIV in low- and middle-income countries were treated with ART (WHO, 2014). In December 2019, an estimated 25.4 million people, or 67.4% of people living with HIV worldwide, were on antiretroviral therapy from a total of 38 million people (UNAIDS, 2020b). The number of people that have access to antiretroviral drugs is likely to increase, and ART can be regarded as access to basic public healthcare. This is important because it gives people living with HIV an opportunity to avoid AIDS and an opportunity for further treatment to not reach a serious stage (Azetsop & Diop, 2013). Consequently, they will be able to live longer and be able to survive. Thus, it depends on the accessibility of new HIV-positive people that have not received ART and depends on ongoing treatment (The Global Network of People Living with HIV, 2013).

Thailand is one of the middle-income countries following the antiretroviral guidance from the World Health Organization and receiving antiretroviral aid from the AIDS Anti-HIV Fund, Tuberculosis, and Malaria (Global Fund to Fight AIDS, Tuberculosis, and Malaria-GFATM) continuously since the past. Until then, policies can be developed that allow all people living with HIV to have access to antiretroviral

drugs without the cost of treatment. There is a very important public health policy under the so-called universal health coverage or national health insurance (National Health Security Office, 2018a). This policy provides all Thai citizens with the right to access medical care. It is influenced by the provisions of the Constitution of the Kingdom of Thailand BE 2540 and emphasizes the right to medical treatment, which is considered a fundamental right of the Thai people. Later, the National Health Security Act, BE 2545, was introduced from the concept of Dr. Sanguan Nittayarumpong during the Thaksin Shinawatra government defining the Universal Health Coverage scheme or the 30-baht policy to treat all diseases.

The determination of treatment benefits for people living with HIV and AIDS occurred after the policy of 30 baht for all diseases. It stipulates that people living with HIV and AIDS that are eligible for medical care are covered by three health insurance funds. The Universal Health Coverage Scheme (UCS) or the Gold Card Fund (30-baht for every treatment) is a fund given to people that do not have any welfare rights. Social security for medical care is given to people registered at a healthcare facility and without the cost of treatment, including HIV antiretroviral therapy. The Government or State Enterprise Officer is a form of direct disbursement of HIV antiretroviral therapy between the treatment hospital and the Comptroller General's Department.

Although people have different healthcare rights, antiretroviral therapy is required for all rights according to the National Essential Medicines List, except for civil servant rights that previously have received drugs that are already outside the national essential medicine list; they can continue to receive medicines. The implementation of these policies has resulted in increased access for HIV and AIDS patients to antiretroviral therapy. Thailand is therefore a case study that has interestingly developed in access to the antiretroviral policy. From the few that have access, it has evolved into a policy that has multiplied the accessibility of ART to international recognition, which will be explained in the next section.

### 2.1.3 Policy Developments Promoting Access to Antiretroviral Therapy in Thailand

Since 1991, the beginning of the government's policy to promote access to ART in Thailand has continued to this day. Over 27 years (1991-2018), there have been changes in policy and policy processes that have directly affected access to antiretroviral drugs for Thai patients. A substantive analysis of the policy to promote access to ART in Thailand in various dimensions and relevant factors is, therefore, an important basis for further understanding and analysis. In this study of the developments in ART access promotion policies, the investigators divided the study periods according to key changes: "The Universal Health Coverage Scheme (UCS)"

The change in policy to promote access to antiretroviral therapy in Thailand can be divided into three eras:

The first era is before the Universal Health Coverage Scheme (UCS): the beginning of access to anti-drugs, 1991-2000.

The second era is the time of the Universal Health Coverage Scheme (UCS): the era of development towards universal access to antidepressants 2001-2006.

The third era is the era after universal health coverage (UCS): the era of Compulsory Licensing (CL) to the Ending AIDS 2007-2018.

### 2.1.4 The First Era, before The Universal Health Coverage Scheme (UCS): The Beginning Of Access to Anti-Drugs, 1991-2000

Thailand found its first AIDS case in 1984 among homosexuals (Academic Development Group Office of Disease Prevention and Control, 2013; Department of Disease Control Bureau of AIDS, 2014; Ministry of Public Health. Department of Disease Control Office of AIDS Tuberculosis and STDs, 2004; World Bank & UNAIDS, 2003). After that, the epidemic spread to various groups, including women in sex trafficking, needle drug addicts, heterosexual groups, and infected infants from mothers (World Bank Group, n.d.). Since 1989, the number of morbidity rates has increased rapidly (Ministry of Health. Division of Epidemiology, 2003). There was a high prevalence among sex workers (44 percent) in Chiang Mai and 13 provinces nationwide (World Bank Group, n.d.). In addition, in 1990 the number of people

infected with HIV in Thailand increased until it became the most prevalent country in Southeast Asia with 520,000 infected with HIV (WHO Thailand, 2018).

The severity of the problem has become a public issue that affects the lives of the people, leading to its subsequent designation as part of the government's public policy. The first government that began to introduce the prevention and solution of AIDS in government policy was the government of General Chatichai Choonhavan, as evidenced by a policy statement to the National Assembly on January 9, 1991: “The government adheres to AIDS control and prevention as an urgent and high priority national policy. It will expedite all relevant agencies and the private sector to take responsibility for continuing action on AIDS prevention seriously” (Office of the Secretariat of the House of Representatives, 2001)

This policy statement shows that the government of Gen. Chatichai Choonhavan had great importance to the control and prevention of HIV infection or the prevention of AIDS until it has been declared a national policy where the government must urgently implement the policy. However, General Chatichai Choonhavan's government had not yet set a clear policy on the treatment of HIV and AIDS patients with antiretroviral therapy. This is because antiretroviral drugs were only imported into Thailand around 1990. At that time, the government focused mainly on economic policy and international trade policy rather than social policy. There was no definitive program or policy by the political parties to bring antiretroviral drugs into the public health system.

2.1.4.1 Expression of Political Will

Panyarachun's government is considered the first government to express political will; namely, clarity in solving the AIDS problem. A policy statement was made to the National Assembly by announcing a policy to make AIDS a national agenda: “Accelerate the control and prevention of communicable diseases, especially AIDS, to be effective. The government works together with the private sector and public organizations in promoting people's awareness of the dangers of disease to create awareness. Everyone has to work together to prevent and solve this problem” (AIDS Access Foundation of Thailand, 2020; Office of the Secretariat of the House of Representatives, 2001)

Then the National AIDS Prevention and Control Committee was appointed. It was the first time for Thailand to act in direct responsibility for this problem (National Center for AIDS Management, 2017). This committee was chaired by the Prime Minister and included various sectors as a committee. This (World Bank & UNAIDS, 2003) shows that the prevention and control of AIDS have become a top priority in the national agenda (World Bank Group, n.d.) as political parties, especially the Prime Minister, have taken over. The committee has the authority to formulate policies, plans, and measures for government and private agencies to prevent, solve, and manage AIDS problems, including monitoring and assessing the country's performance on AIDS prevention and resolutions (National Center for AIDS Management, 2017). This committee has continued the responsibilities until now, despite several government changes.

Another concrete political will of the Anand government is that in December 1991, the National AIDS Prevention and Control Committee approved the use of antiretroviral drugs for AIDS. It was used in the treatment of AIDS patients and all persons with AIDS-related symptoms in both public and private hospitals and import taxes on antiretroviral drugs were exempted in order to reduce the cost of treating AIDS patients. In addition, the Bureau of Budget allocated a budget to be appropriate for the procurement of antiviral drugs as well (National Center for AIDS Management, 2017). It was regarded as the first government of Thailand to initiate a policy on access to antiretroviral drugs, which is a top-down policy. Although free treatment has not yet been provided, it was the starting point for creating opportunities for people to have access to antiretroviral drugs in the public health system, where later governments established policies that have had tangible results

2.1.4.2 Project-Based Access: Limitations on Access Numbers and High Drug Prices

Free access to antiretroviral treatment in Thailand began in 1992 with the drug Zidovudine (AZT) (Ministry of Public Health. Department of Disease Control Office of AIDS Tuberculosis and STDs, 2004). This was a policy development from the former policy of access to antiretroviral drugs cost treatment. The government operated in the form of a project. The first project took place during the first term of Mr. Chuan Leekpai's government, which won the election on 13th

September, 1992. It was a project that focuses on providing nursing care for low-income people and that have voluntary health insurance (Office of the Secretariat of the House of Representatives, 2001). The “Antiretroviral Therapy: ART Access Project” is monotherapy treatment (World Bank & UNAIDS, 2003). The project's target audience was low-income patients. At that time only a handful of hospitals had specialists involved in the project due to the high cost of antiretroviral drugs (World Bank & UNAIDS, 2003): “The cost of access to antiretroviral drugs at that time was about 25,000-30,000 baht/person/month which was considered very high” (Order, 2018), or if calculated annually, the cost is up to 300,000-360,000 baht/person/year. At the time 470,000 people were living with HIV in Thailand (UNAIDS, 2018b). The total budget increased to 141,000-169,200 million baht, while the state budget was 460,400 million baht. Therefore, no everyone was able to participate in the project. Only those that were economically affluent, or wealthy had more options, without participating in the program, and could afford more HIV drugs than the poor. However, despite its affordability, the price of HIV antiretroviral drugs is still very high.

However, given the quality of the drug at that time, the results of the treatment evaluation between the World Bank and Thailand's Ministry of Public Health revealed that the results were not worthwhile in terms of prolonging the patient's life (Ministry of Public Health. Department of Disease Control Office of AIDS Tuberculosis and STDs, 2004). As a result, later in 1995, there was a reduction in investment support for purchasing medical supplies for the treatment of both ART and drugs to treat opportunistic infections. Instead, there were plans to promote health and medical services that should be emphasized, including the provision of medical services to reduce the spread of the disease, especially at-risk groups, and the development of care services for patients or people with AIDS at home and in the community (Center, 2015).

Regarding access to antiretroviral drugs in Thailand, most of the projects were carried out during the Chuan Leekpai government, while Banharn Silpa-Archa's government focused on AIDS prevention policies and on campaigning and disseminating knowledge and raising people's understanding of the dangers of AIDS.

The focus on antiretroviral drugs was focused on research on AIDS vaccines for the prevention and treatment of AIDS rather than policy of antiretroviral therapy for treatment. On the other hand, the government of General Chavalit Yongchaiyudh emphasized the policy of preventing the spread of AIDS for all vulnerable groups and the prevention and self-remediation for patients, families, and communities as well.

After General Chavalit Yongchaiyut won the election in 2000, Chuan Leekpai served as Prime Minister for a second term. At that time, another new HIV drug access program was born under the name "Project to develop a service system and follow up on treatment for HIV and AIDS patients" (Triple therapy) (Center for the Development of Antiretroviral Drug Services for HIV-infected and AIDS Patients in Thailand, 2010). This was to provide antiretroviral drugs to HIV-infected people who wished to participate in the program. In addition, a new project emerged under the name "Access to Care-ATC" (World Bank & UNAIDS, 2003); (Thai Hospital Pharmacy Association, 2006). This project set a quota for providing antiretroviral drugs to 3,000 people with HIV in 109 hospitals. Two years later, the number of people receiving antiretroviral therapy increased to 13,000 and 28,000, respectively (Center for the Development of Antiretroviral Drug Services for HIV-infected and AIDS Patients in Thailand, 2010; Thai Hospital Pharmacy Association, 2006; World Bank & UNAIDS, 2003)

During Chuan Leekpai's government, several projects on access to antiretroviral drugs were established. This led to an increase in the number of people receiving antiretroviral drugs, but not enough compared to the proportion of people living with HIV. The governments and relevant authorities at the time were trying to increase programs to provide access to more specific groups of antiretroviral drugs, including pregnant women and people living with HIV here is for example a program to prevent infection from mother to child (Department of Disease Control Bureau of AIDS, 2014). In this regard, the Ministry of Public Health has set a policy, "Encourage hospitals in all provinces across Thailand to develop a project to provide consultation and blood testing services for pregnant women and provide short-term AZT medication starting from 34 weeks of gestation onwards together with providing formula milk for babies born to HIV-infected mothers for 1 year" (AIDS Association of Thailand, 2020). The Mother-to-Child Prevention Program is a program that

provides HIV antiretroviral drugs to pregnant and HIV-positive mothers to prevent transmission to their children (AIDS Research Center Thai Red Cross Society, 2020). The project is one of the few projects that, despite the change in government, is still being taken seriously and is considered the most successful. In 2016, Thailand was recognized by the World Health Organization as the first country in Asia and the second in the world to successfully eliminate mother-to-child transmission of HIV and syphilis (WHO, 2016).

2.1.4.3 Enactment of Specific Laws

In addition to Chuan Leekpai's government's efforts to promote access to antiretroviral drugs through several initiatives, it can be said that the success of tackling AIDS or accessing antiretroviral drugs in Thailand is far more common. Once comes from the law that the government has enacted as well. The government of Mr. Chuan Leekpai issued the Regulation of the Prime Minister's Office on the National Prevention and Solution to AIDS 1998, with the reason for issuing such regulation as follows:

> *"Currently, the AIDS epidemic in Thailand is severe, rapid, and continuous, causing widespread economic, social, psychological, and national security impacts. The government considers that solving this problem will require serious administration and management, efficiency, flexibility, with close cooperation from government agencies. private business and foreign organizations, therefore, require special management regulations."*

The prestige of the law was at the level of the Prime Minister's Office regulations, it was legally enforceable. Considering the reasons for the issuance of the regulations, it can reflect the government's focus on AIDS problems that required a regulation to support the solution in terms of agile and efficient management. In addition, various sectors have come into operation with the government sector. The head of the administration was the Prime Minister as chairman of the committee. Directors came from the public sector, who were senior executives of agencies working in public health and society, such as the Permanent Secretary of the Ministry of Public Health, the Permanent Secretary for the Interior Permanent Secretary, the Ministry of Education, etc. The private sector specializing in AIDS, as well as the

public sector representing people living with HIV, also became the National AIDS Prevention and Control Commission. The committee was responsible for formulating the country's AIDS prevention and solution policy. In addition, the National AIDS Management Center was established to serve the integration and management of AIDS problems more flexibly and effectively.

The enactment of a specific law allowed the national committee to play an important role in co-directing with the government because it drew various sectors into the committee to coordinate the policy. Joint decision-making allowed the National Committee on AIDS to formulate several policies promoting access to antiretroviral drugs, such as adjusting the antiretroviral regimen, defining the right to maintain health insurance, etc.

In summary, the formation of policies to promote access to antiretroviral drugs was due to the growing epidemic of people living with HIV and AIDS and the number of deaths in the population. Therefore, antiretroviral drugs are essential in helping people with HIV live longer. The current of such problems led the government to express its political will by appointing the National AIDS Prevention and Control Committee for the first time in Thailand during the Anand government. This committee was chaired by the Prime Minister. A policy on HIV antiretroviral therapy was subsequently established. In the reign of Mr. Chuan Leekpai's government, there was a clearer and more directed process for implementing the policy. Efforts have been made to promote access to antiretroviral drugs in the form of participation in government programs, and specific legislation has been enacted as a mechanism for managing AIDS in various fields.

However, the formulation of policies to promote access to antiretroviral drugs in Thailand has been somewhat delayed in the current situation. Because there was known that the first AIDS patient in Thailand in 1984 before a severe epidemic spread throughout the country. It has been nearly 10 years for antiretroviral drugs to enter the publicly accessible healthcare system, which may be analyzed as follows. Regarding the first factor, antiretroviral drugs have been introduced into Thailand in a relatively short period, from 1990 to 1992, but the medicine has not been distributed to different areas. In terms of the second factor, although government efforts have been made to increase access to antiretroviral drugs

through programs, the implementation of the programs may be limited by budget scope because the government has to manage the country and distribute the budget to other government projects as well. The starting and ending period for the implementation of the project might have affected the process and outcomes of accessing ART.

The third factor is the expensive cast of ART, which is a key factor in limiting access to treatment. People in poverty, in particular, have a more difficult time accessing ART compared to those that did not participate in the government's promotion of access to ART. People with access to antiretroviral treatment are more likely to be wealthy than the poor. Because the price of antiretroviral drugs is so high, the opportunity for access to antiretroviral drugs depends on affordability.

### 2.1.5 The Second Era, The Universal Health Coverage Scheme (UCS)

This second generation of Thailand's access to antiretroviral drugs is an era that has increased opportunities for HIV-positive people to have access to ART in the form of a program. The government's push towards universal health coverage, particularly the imposition of benefits for people living with HIV and AIDS to be included in universal health coverage, has resulted in access to antiretroviral therapy increasing exponentially.

At that time, several interesting phenomena occurred. During Dr. Thaksin Shinawatra's administration in the first and second consecutive terms, there were phenomena that affected the development of policies for promoting access to antiretroviral drugs during that period: comprehensive health coverage, including political factors and policy responses, pressure on people's networks, the success of antiretroviral drug production in Thailand, changing access from within the project model towards becoming one of the universal health insurance policies, and establishing a new organization.

2.1.5.1 Political Factors and Policy Responses

After new elections were held following the leadership of Mr. Chuan Leekpai, the Thai Rak Thai Party received the most votes with 248 members of the House of Representatives on a constituency and party-list basis. The government came from the party that received the majority of the votes. Therefore, the Thai Rak

Thai Party took the lead in forming a government by gathering votes from other parties, including the New Hope Party, the Libertarian Party, the Chart Thai Party, and the Chart Pattana Party. Consequently, there were 372 members of the House of Representatives out of 500 members. Pol. Lt. Col. Dr. Thaksin Shinawatra (position at that time) therefore was held as the prime minister. The remaining parties were 128 members of the House of Representatives of the Democrat Party, with Chuan Leekpai leading the opposition in the House of Representatives (Thamrongthanyawong, 2017).

The fact that Dr. Thaksin Shinawatra's government had gained a lot of votes resulted in a politically stable government that could set policies and change any policy smoothly. During that time, campaign policies were adopted as the main government policies and guidelines, including the universal healthcare coverage scheme (30-baht policy). Despite criticism from both academics and opposition from some health workers, the policy was able to continue with a positive response from the public.

The prescribing of antiretroviral drugs was included in universal health coverage (30-Bath policies). This was a result of the effectiveness of political parties in determining and changing ART access policy to meet the demands of society. Consequently, having a majority in parliament led the government to decide that the rights of people living with HIV and AIDS made them eligible for universal health coverage while no previous government could accomplish this. This may be due to coalition governments from various political parties causing political instability. Policy formulation and policy change could be carried out as desired.

2.1.5.2 The Pressure of the Public Sector Network

Although the policy to create universal health insurance for 30 baht per treatment, known as 30-Baht to treat all diseases, is a policy that improves the quality of life for Thai people as well. It is a policy that arose to reduce people's expenditure on healthcare and enhanced opportunities for access to healthcare services universally and equally (Office of the Secretariat of the House of Representatives, 2001). However, the universal healthcare coverage scheme at the beginning of the policy implementation did not include antiretroviral therapy for people living with HIV and AIDS. This prompted the network of more than 1,200 people living with HIV/AIDS in Thailand and AIDS NGOs to rally to call on the government in front of the

Government House on November 30, 2001. In this activity, there was the following demand: “Antiretroviral therapy is a global standard of treatment that can help reduce the number of HIV in the body and reduce morbidity and mortality, thereby improving people's health. It must therefore be a right that an infected person should have when it comes time to receive antiretroviral therapy” (The HIV/AIDS People's Network Thailand, 2020)

The result of the calls of the People's Network put pressure on the government due to the large number of protesters and the media coverage. As a result, on that day, Mrs. Sudarat Keyuraphan, the Minister of Public Health, announced the acceptance in principle to bring antiviral drugs into the Universal Healthcare Coverage scheme. A working group from both the HIV/AIDS NGOs network and the government was set up to prepare for such action step by step (The HIV/AIDS People's Network Thailand, 2020). The government subsequently expanded the access to antiretroviral therapy by granting an additional budget of 50 million baht in the first round (The HIV/AIDS People's Network Thailand, 2020). The people's network has called for 30 baht for antiretroviral drugs to enter the program because during that time (B.E. 2001) only 1,710 people received ART, compared to 654,782 living with HIV (National Center for AIDS Management, 2017). Regarding the benefits associated with HIV antiretroviral services not being included in universal health coverage, the efforts of the public sector network that called themselves the HIV/AIDS Network Thailand continued to make efforts to call for antiretroviral therapy as part of the Universal Healthcare Coverage Scheme (National Health Security Office, 2019).

2.1.5.3 The Success of Antiretroviral Drug Production in Thailand

There is a wide variety of drugs that are being tested to treat people with HIV or AIDS around the world. Azidothymidine (AZT) was first developed in 1985 in the United States to test for antibodies in the body of AIDS patients. In 1987, it was found to be associated with an increase in survival at 24 weeks. However, this drug has various side effects. Several other drugs were later developed, including saquinavir and indinavir. Specifically, Indinavir was approved in 1996 and significantly changed the course of treatment. This later led to antiretroviral therapy (Vella, Schwartländer, Sow, Eholie, & Murphy, 2012). The vast majority of the

production of antiretroviral drugs for HIV is produced in developed countries, which have the medical technology capability to produce higher-quality drugs than developing countries. As a result, drug prices are mainly controlled by these countries. For some developing countries, the ability to produce drugs on their own will give their citizens greater access to anti-drugs than relying solely on imports.

In Thailand, in the early days of the HIV epidemic, most of it was aided by international organizations, such as the Global Fund to Fight AIDS, Tuberculosis, and Malaria. Drugs are imported from abroad because Thailand was not able to produce antiretroviral drugs on its own. As a result, the public's access to antiretroviral drugs was limited, but the main turning point of antiretroviral drug access was in 2002, known as the "antiviral era," when the Thai Pharmaceutical Organization (GPO) could produce antiretroviral drugs on its own, resulting in the price of antiretroviral drugs becoming very cheap. The price of GPO-vie was about 1,200 baht per month, while the price of antiretroviral drugs before Thailand could produce them was very expensive. The cost of antiretroviral therapy was 27,000 baht per month or $675 per month or 324,400 baht per year or $8,100 a year (World Bank Group, n.d.). Efavirenz, the first prescription drug prescribed by doctors for treatment, was later approved by the World Health Organization (WHO) (Order, 2018). Before Thailand could produce the drug, the original price was 1,000 baht per bottle, and after the Government Pharmaceutical Organization could produce it caused the price to be reduced to only 180 baht, with approximately 80,000 people receiving this drug (Thai Post, 2018). Therefore, high drug prices hinder access to treatment, but lower prices for HIV drugs play a key role in promoting greater access to HIV drugs. It also has a positive impact on the health insurance system and hospitals that have lower budgets to purchase antiretroviral drugs, reducing their dependence on foreign countries.

2.1.5.4 Transforming Access from a Project to the Universal Healthcare Coverage Scheme

In 2003, Dr. Thaksin Shinawatra's government began formally certifying that people with HIV would receive universal treatment by expanding access to antiretroviral services and distribution to 400 government hospitals across the country. It was access to treatment according to the specified quota. During that

time, access to antiretroviral drugs remained in the form of a program the government had set up under the name "National Access to Antiretroviral Drugs for HIV/AIDS (NAPHA) Project," also known as the "NAPHA Project" (Academic Development Group Office of Disease Prevention and Control, 2013; World Bank & UNAIDS, 2003). A year later, the government announced that access to antiretroviral therapy had become a national policy and abolished the quota regimens. Then in 2005, The Antiretroviral Drug Opportunity Extension (ART) program was being prepared to enter universal health coverage (International Health Policy Office Ministry of Public Health, 2015). This could expand the care services in 908 hospitals covering 76 provinces nationwide. It was able to provide HIV antiretroviral drugs to 70,000 people from the first year of only 8,500 people (Ministry of Public Health. Department of Disease Control Office of AIDS Tuberculosis and STDs, 2004). In 2006, the government has determined that anti-HV drugs be included in the universal health coverage system (for HIV-positive people who are Thai and have a 13-digit number) (World Bank Group, n.d.). This adds up to 95,620 people getting antiretroviral drugs from the number of people living with HIV at 542,880.

The situation was showing that since 2003 the government has been trying to expand access to antiretroviral therapy through it had been continued to implement programs and attempts to end the restricted access. The number of people accessing treatment has changed to unlimited access. Finally, access to antiretroviral drugs was modified from the traditional scheme implemented as a project where almost all governments operated in such a way to become those using the Universal Healthcare Coverage Scheme. It can be said that Dr. Thaksin Shinawatra's government changed the model of access to public healthcare for common diseases until specific diseases. This makes the number of people more likely to have access to free treatment. Transforming access to ART as one of the universal healthcare coverage schemes is an important policy development in promoting access to ART. This is because the subsequent governments have developed and imposed additional benefits in the Universal Health Coverage Scheme for more and more people living with HIV and AIDS.

2.1.5.5 Establishment of a New Organization

After the National Health Security Act BE 2545 was enacted through the National Assembly, a specific organization was established called “The National Health Security Office (NHSO),” which was an organization formed under a new management concept according to the universal health coverage policy stated in the National Health Security Act B.E. (Tamronglak & Wangmahaporn, 2015). It served to launch the Universal Healthcare Coverage and to be the secretary of the National Health Commission and the Health Service Quality and Standards Commission, which is responsible for administering the National Health Security Fund. In addition to this, one of the key funds that have been set up specifically is “The Fund for the Service of HIV-Infected People, AIDS Patients, and TB Patients,” which has defined the scope of services, consisting of the following: 1) antiretroviral care and drug treatment; lipid condition; 2) laboratory autopsy for diagnosis or follow-up; 3) counseling and voluntary HIV testing; 4) support for holistic care services; 5) hepatitis screening and confirmation; and 6) HIV prevention services (National Health Security Office, 2017).

In terms of providing services to people with HIV and AIDS, services are provided under administrative structure, distributed in all regions of the country, totaling 13 regions, consisting of National Health Security Office, Region 1); Chiang Mai, Region 2); Phitsanulok. Region; 3); Nakhon Sawan, Region; 4); Saraburi, Region; 5); Ratchaburi, Region 6); Rayong, Region 7); Khon Kaen, Region; 8); Udon Thani, Region; 9); Nakhon Ratchasima, Region 10); Ubon Ratchathani, Region 11); Surat Thani, Region; 12); Songkhla, and Region; 13; Bangkok (National Health Security Office, 2020). The structure has greatly promoted access to antiretroviral drugs as it has managed to distribute antiretroviral drugs to healthcare districts in hospitals within the health service area, covering all provinces of Thailand.

Since the government of Dr. Thaksin Shinawatra has designated antiretroviral treatment for HIV and AIDS as one of the benefits packages of the universal health coverage system since fiscal year 2006 onwards, in particular the National Health Security Office is responsible for preparing budget requests for HIV and AIDS patients to be submitted to the Budget Office for consideration. The National Health Security Office has continued to operate. In addition, the National

Health Security Office has also played an important role in acting as the "representative" of the people in making the tax savings of the people collected by the state as efficient as possible. For example, anti-HIV drug dealers and AIDS drug dealers were invited to meet to negotiate price reductions where the National Health Security Office is considered a major customer of the business and industry for the manufacture of HIV antiretroviral drugs and related pharmaceuticals, providing high bargaining power. The negotiations were so successful that they were able to negotiate lower prices for antiretroviral drug dealers. This has brought benefits to the people and the government, and has been carried out in this manner until the present. In summary, second-generation access to ART is a policy development driven by certain factors contributing to increased access to early-stage ART, including the following.

First is the pressure from the public sector to call for antiretroviral therapy to be included in universal health coverage. Access to antiretroviral drugs has resulted in people of all social classes accessing universal treatment. One important part is that the beginning was caused by pressure from the public sector's network that demanded that the government include it in universal health coverage. Although the public sector's claim lasted four years, from 2001 to 2005, and was completed in the fifth year (2006), it shows that the power of strongly networked people requires patience and time to influence the key contribution to the state's public policy. The state is not only comprised of one-sided policymakers, but people can also participate in government policy-making as well.

The second factor is the stability of political parties. This makes it easier for government leaders to make policy decisions or change policies than an unstable government and that can respond to the demands of the people immediately.

The third factor is Thailand's ability to produce antiretroviral drugs on its own. This makes the price of medicines much cheaper. Before the Thai Pharmacist Organization had was able to produce antiretroviral drugs, the price of antiretroviral drugs had become a major barrier to accessing antiretroviral drugs. However, after Thailand could produce its antiretroviral drugs and was certified according to international standards, there was greater opportunity or greater contribution to the promotion of access to antiretroviral drugs for infected people.

The fourth factor, the transition of access to program-based treatment to universal access to treatment, is one of the government's policies. This reduces the limitations on the number of people that have access to treatment. There is no time limit for the implementation, therefore, this has led to an increase in the number of people receiving ART because it provides benefits to people living with HIV and AIDS without access to ART and medical care without the cost of treatment. All people of all economic backgrounds, especially the poor, can have access to antiretroviral therapy without worrying about the cost. This is the basis for the development of other benefit assignments related to the treatment of HIV and AIDS patients by other governments.

The fifth factor, the establishment of a new organization with specific responsibilities in the management of the country's public health services, includes the provision of services specific to those living with HIV and AIDS.

### 2.1.6 The Third Era: The Post-Universal Health Coverage Era: The Compulsory Licensing (CL) Era to Ending AIDS 2007-2018

Regarding third-generation access to HIV antiretroviral drugs after HIV and AIDS were required to be eligible for universal health coverage, during that time there was a major political shift as the government of Dr. Thaksin Shinawatra was a coup d'état on the 19$^{th}$ of September, 2006 led by General Sonthi Boonyaratklin, Commander-in-Chief of the Royal Thai Army and Chairman of the National Security Council (CNH) A new government was established, led by General Surayut Chulanon, who became Prime Minister on October 1, 2006. After Thailand had universal health coverage, it was found that the number of people that had access to antiretroviral drugs tended to increase steadily. This is the result of compulsory drug rights measures that have helped to expand opportunities to promote access to antiretroviral drugs, increase national budgets, adjust antiretroviral regimens, and formulate a national strategy for ending the AIDS epidemic in the long term.

#### 2.1.6.1 Compulsory Licensing: CL

During the administration of General Surayut Chulanont's government, there were gatherings of the HIV/AIDS Network of Thailand, public health NGOs, the AIDS Access Foundation, and civil society once again calling on the Thai

Ministry of Public Health to use "Compulsory Licensing" (CL) with antiretroviral drugs (National Health Security Office, 2019), as claimed by Dr. Mongkol Na Songkhla, Minister of Public Health at that time. The claim was ultimately successful as the National Committee on AIDS Prevention and Solution adopted a resolution acknowledging the promulgation of Compulsory Licensing of the antiretroviral drug Efavire. As a result, prices have been reduced to cover more recipients (Center, 2015). Consequently, the number of access to antiretroviral drugs has increased to 133,539 in 2007 and 185,086 in 2007. 2008 (National Center for Management of AIDS Problems, 2017).

In the past, before the fight by the HIV Network and the People's Network Alliance over Compulsory Licensing, antiretroviral drugs were very expensive. Virus formula with lopinavir and ritonavir, from the original price of 74.23 baht/tablet to 18.18 baht/tablet and in 2016 reduced to only 12.35 baht/tablet, Antiviral drug Efavirenz 600 mg, from the price of 65.78 baht/tablet after the announcement, the drug was reduced to 10.37 baht/tablet and in 2016, only 4.578 baht/tablet. Clopidogrel from 70 baht/tablet after CL announcement to only 1.08 baht/tablet (Limpanyalert, 2016). It can be seen that the important reason for Announcing Compulsory Licensing is to give people more access to essential medicines (Bureau of Commercial Strategy, 2008), especially poor people. This is because some drugs are not included in the universal health insurance benefits package. People have to pay a lot of expenses. The government's announcement of a drug patent enforcement measure has contributed to concrete access to antiretroviral drugs in Thailand. Such measures have continued to be effective in practice through the administration of the governments from General Surayut Chulanont to the current government.

2.1.6.2 Increase of The National Budget

After the treatment of people living with HIV and AIDS was defined as one of the benefits of the universal health coverage policy in 2006 until the year of the study (B.E. 2018), it was found that budgets related to HIV antiretroviral care also tended to increase significantly. In addition, such expenditure increases were also associated with promoting access to antiretroviral therapy. Regarding the budget data for HIV and AIDS services, it was found that in 2006 there were 95,620 people

receiving antidepressants with a total budget of 2,792 million baht. In 2007, the budget was increased to 3,855.6 million baht, bringing the number of people receiving antiretroviral drugs to 133,539 people. In 2008, it was the year that allocated the highest budget of 4,382.4 million baht (see Chart 2.1), resulting in up to 185,086 people receiving ART in the first two years after rights were granted under the Universal Health Coverage. The relatively high budget allocation by the government compared to the budget in recent years may be a result of the recently enforced enforcement of drug patents. As a result, drug prices have not decreased much.

However, over time, the CL measures, along with the fact that the GPO can produce its own antiretroviral drugs, have also reduced prices for some HIV drugs. After that, the budget allocated in the following years was not much different, but on average, the overall budget allocated still has tended to increase.

Most of the budget allocated is for HIV antiretroviral therapy (International Health Policy Office Ministry of Public Health, 2015) or more than 90% of the total budget for HIV and AIDS patients. The second is the cost of HIV prevention and support and promotion of services for people living with HIV and AIDS. The budget is considered a high priority for the government as it receives an additional budget from the per capita medical bills allocated by the National Health Security Office.

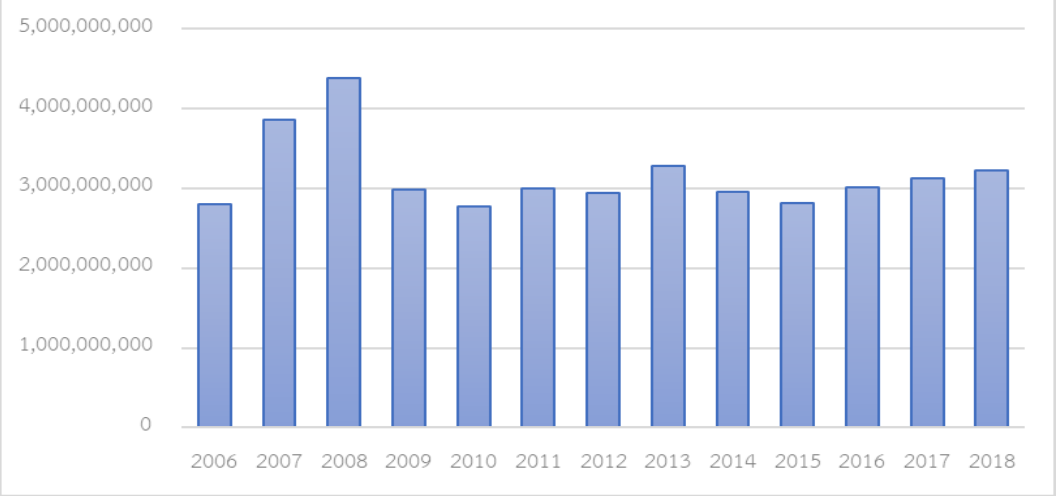


Figure 2.1 Government Budget for Services to People Living with HIV and AIDS 2006-2018

2.1.6.3 Modification of HIV Antiretroviral Regimens as Recommended by the World Organization

Even if the government has increased its budget, if people with HIV are not yet within the medical criteria for a white blood cell or antibody (CD4) determination, they may not be treated with antiretroviral drug therapy, despite periodic changes in the criteria for HIV antiretroviral therapy for people living with HIV. The principle of changing the HIV antiretroviral regimen is based on clinical evidence that has been studied in order to better confirm the effectiveness of the treatment. The body that establishes international standards for antiretroviral therapy is the World Health Organization, which first published guidelines for antiretroviral therapy in 2002 (WHO, 2016). treatment is recommended for people with HIV whose immune system or CD4 count is 200 cells/mm3 or less. Later in 2009, treatment was promoted for all patients when the CD4 count decreased to 350 cells/mm3 or less, regardless of symptoms (WHO, 2010). As a result of recommendations on antiretroviral therapy, it was found that more than 4 million people out of 9.5. 42% of million, or 42%, had access to antiretroviral therapy in low- and middle-income countries, a tenfold increase over the past five years by 2007. Only 33 percent had access to antiretroviral drugs (WHO, 2010).

In 2013, a new antiretroviral regimen was established for adults to consider having an immune response or a white blood cell (CD4) count of fewer than 500 cells/mm3, regardless of clinical stage. Focus was on people with advanced or advanced HIV, stage 3 or 4 clinical outcomes, or lower CD4 cell counts cells/mm3 based on WHO's clinical evidence, confirming the efficacy of treatment and its association with reduced risk of AIDS and death among ART recipients (WHO, 2016). In 2015, the World Health Organization introduced a new recommendation worldwide that antiretroviral therapy should be given to people living with HIV without limiting their immune system or antibody values Leukopenia (CD4) (WHO, 2015).

In Thailand, the antiretroviral regimen has been adjusted according to the recommendations of the World Health Organization. Important criteria have been changed, affecting access to antiretroviral drugs in the administration from three

governments: Abhisit Vejjajiva's government, Ms. Yingluck Shinawatra's government, and General Prayut Chan-Ocha's government.

Abhisit Vejjajiva's government was the first government to initiate a change in the antiretroviral regimen that Thailand has been using for decades. In the past, people receiving antiretroviral drugs had to have an immune system or a white blood cell (CD4) count of fewer than 200 cells/mm3 to be eligible for antiretroviral therapy.

In 2010, during the administration of Abhisit Vejjajiva's government, the antiretroviral regimen was revised by providing HIV-infected persons with faster HIV antiretroviral therapy (see Table 2.1), and additional treatment regimens were added (Center, 2015). Subsequently, the government of Ms. Yingluck Shinawatra had a clear resolution on October 1, 2012. It has since been prescribed that antiretroviral therapy should be initiated at an individual immune or CD4 count fewer than 350 cells/mm3. One year later, the antiretroviral regimen was revised, switching to initiating HIV treatment as soon as HIV was detected, despite immune or white blood cell counts (CD 4) (Center, 2015).

Changing the criteria, the government of Gen. Prayut Chan-Ocha passed a similar resolution to the government of Ms. Yingluck Shinawatra but stated clearly the provision of free antiretroviral drugs in the country. All rights of treatment, regardless of the white blood cell count (CD4) allowed all Thai people to have free blood tests twice a year (Center, 2015) from October 2014.

After adjusting the antiretroviral regimen, it was found that new HIV-infected people had access to services faster, resulting in better health. Based on those whose immune system value or white blood cell (CD4) value was less than 100 cells/mm3, the trend continued to decline from 57.51% in 2009 to 38.79% in 2017. Those with immunity or CD4 values greater than 500 cells/mm3 tended to increase from 2.61% in 2009 to 13.93 percent in 2017. This was consistent with the antiretroviral access policy where all HIV-infected persons would receive ART regardless of their white blood cell (CD4) value (Matichon Online, 2018). However, the government expected its antiretroviral regimen, regardless of white blood cell (CD4) value, (CD4) to increase access to antiretroviral drugs. However, when the policy was implemented, from the perspective of those working with AIDS, it was not

as successful as it should have been. Some patients were still unable to receive treatment. This is mainly since some doctors did not adhere to the policies announced by the government. Diagnosis may be made based on symptoms or on the same antiretroviral regimen previously implemented, reflected by the Director of Access to AIDS and the Phiwat Thai Public Health Foundation (Phiwat Public Health Foundation of Thailand and Hfocus News Agency In-depth Health Systems, 2016).

> *"The policy of providing HIV antiretroviral drugs to infected people without limitation on CD4 (CD4) fees after this policy It has been announced for 2 years. Assigning ART to all HIV-positive people, it appears that a portion of those infected have had difficulty accessing ART. This is since some of the treating physicians still use their discretion in prescribing antiretroviral therapy to infected people without following the guidelines that require antiretroviral therapy for all patients who need it. infection detected as prescribed by the National Health Security Office (NHSO)."*

> *"The problem that arises now comes from the viewpoints and perspectives of physicians regarding antiretroviral therapy. Even though the system by the NHSO has enabled patients to receive antiviral drugs if the infection is detected. This problem has continued to have complaints from infected people. As a result, the AIDS Access Foundation and the HIV-infected network have to clarify by bringing the announcement of the antiretroviral regimen to clarify. This is to allow patients to receive antiviral drugs as soon as possible. This will be good for the infected persons themself.*

> *"This reflects that the policy that announced antiretroviral therapy for all infected people without CDFO limits was not 100% successful because there are still people who don't have access to ARVs."*

From these statements, it shows that at the policy level, the policy to promote access to antiretroviral drugs for Thai people to have the right to medical care has been established. As a result, more and more people have quicker access to antiretroviral drugs, resulting in a better quality of life. However, when implementing the policy, there may be some problems at the operational level. Some of the officers did not implement the re-established policies but still followed their past operations. As a result, some infected people still do not have access to treatment.

Table 2.1 Criteria for Initiating Antiretroviral Therapy in Thailand

| ***Clinical symptoms*** | **CD4 (cells/mm$^2$)** | **Advice** |
|---|---|---|
| *AIDS-defining illness* | Any | Start to take the antiretroviral therapy |
| *Symptoms* | Any | Start to take the antiretroviral therapy |
| *No symptoms* | ≤350 | Start to take the antiretroviral therapy |
| *No symptoms* | >350 | Not to take the antiretroviral therapy, keep following up, and measuring the CD4 every 6 months |
| *Pregnancy* | Any | Start to take the antiretroviral therapy, and stopping after maternity if before the treatment, the CD4 >350 cells/mm$^2$ |

Source**:** Center for the Development of Antiretroviral Drug Services for HIV-infected and AIDS Patients in Thailand (2010).

2.1.6.4 Formulating a National Strategy for Ending the Long-Term Problem of AIDS

In the prevention and treatment of AIDS in Thailand, one thing that reflects the efforts to solve the problem is that a strategic plan has been developed as a guideline to deal with the problem continuously since 1992. In the number of strategic plans, there is a total of 6 issues, comprising No. 1, the National AIDS Prevention and Control Plan. 1992-1996; No. 2, the National AIDS Prevention and Solution Plan 1997-2001; No. 3, the National AIDS Prevention and Solution Plan 2002-2006; No. 4, the National Integrated Strategic Plan for AIDS Prevention and Solution 2007-2011; and No. 5, the National Integrated Strategic Plan for AIDS Prevention and Solution 2012-2016. The five plans are five-year strategic plans. They are considered medium-term plans for working to better deal with the AIDS problem. The 6$^{th}$ edition of the map was called the National Strategy on Ending AIDS Problems 2017-2030. That is considered the longest-term strategic plan that Thailand has ever been created. This strategy was influenced by the June 2016 Political Declaration on Ending AIDS by a UN high-level meeting. It has set a goal to end AIDS by 2030 (UNAIDS, 2020a). The strategy was created by the cooperation of various sectors of society, namely the Department of Disease Control as the Office of the Secretary of the National Commission on AIDS Prevention and Solution, civil society, the private sector, academics, and various network partners. It was submitted to the National Committee on AIDS Prevention and Solution for resolution approval on August 26, 2016, and then it was presented to the Cabinet of the government of Gen. Prayut Chan-Ocha, which was approved. From the Cabinet on 17 January 2017, since then, the government has assigned all relevant agencies to adopt the strategy as a framework for further action on AIDS prevention and solutions. This has made the strategy become another important public policy of the government. The strategy aims to reduce the number of new cases of AIDS to less than 1,000 a year, reduce AIDS-related deaths to less than 4,000, and reduce discrimination against those infected ninety percent of HIV (National Center for AIDS Management, 2017). In addition, 90% of people living with HIV are required to receive antiretroviral drugs by 2020 (National Center for AIDS Management, 2017). Such goals are considered a serious challenge for the Ministry of Public Health to achieve as set out. As of 2018, the

target had not been achieved, and it may take some time. However, if it can be achieved in the future as the goal is set, it will be good for people to have access to antiretroviral drugs. It also affects reducing the situation of the HIV epidemic and the death rate from AIDS.

In summary, in the Post-Universal Health Coverage Era: The Compulsory Licensing (CL) Era to Ending AIDS 2007-2018, some factors promote greater access to antiretroviral drugs in Thailand, including the following.

The CL measurement factors in the government of General Surayut Chulanon have reduced drug prices, giving people with HIV more access to antiretroviral drugs. This is because some drugs are not yet included in the National Health Insurance benefits package. People that are not registered for treatment can have greater access to HIV antiretrovirals. The wealthy and the poor also benefit from the measure.

Factors related to the increase in the budget for HIV and AIDS patients, especially after the announcement that the treatment of HIV and AIDS, are included in the universal healthcare coverage. Since the price of HIV drugs is subject to compulsory drug entitlements, it remains high in the early stages, thus affecting the budget allocation as well. Over time, the price of HIV antiretroviral drugs has steadily declined, pushing the average budget for the last 13 years to increase and decrease alternately, possibly in other contexts, but the average allocated budget continues to be allocated to a greater extent.

The HIV antiretroviral threshold adjustment factor, in particular, does not determine the minimum threshold for immunity or white blood cell count (CD4) to be eligible for treatment. Thailand has set the minimum criteria or symptoms indicating the reception of antiviral drugs in the past. However, after changes from the government of Mr. Abhisit Vejjajiva to the government of Ms. Yingluck Shinawatra and to the government of General Prayut Chan-Ocha, especially the last two governments, more people have had the opportunity to receive anti-HIV treatment.

The factors in determining the national strategy for ending the long-term AIDS problem have given Thailand clearer goals and a long-term solution. It is also a challenging goal for the implementation of the policy to be successful. This not

only affects the increasing number of people accessing antiretroviral drugs but also pushes the problem of the epidemic and the impact of AIDS in a better direction.

From the analysis of policy developments promoting access to antiretroviral drugs in Thailand, it was found that during the pre-universal health coverage period, the era between universal health coverage and after the era of universal health insurance, the type of policy formulation can be divided into two types as follows.

The first category, top-down policymaking, is to promote access to antiretroviral drugs in the form of programs or policies that are set by the government. This feature has been around since 1991. The government in the form of the National AIDS Prevention and Control Committee determines the policy and implements the policy.

The second type is the bottom-up policy setting. This promotes access to antiretroviral drugs that began with public pressure on governments to require people living with HIV to receive universal health coverage in 2001 and 2006. When people's networks called for the state to impose drug rights during both periods, it was considered a bottom-up policy, which was different from other public policies that were largely governed by the government and set at the lower level to follow. This is an important policy development in Thailand's policy in terms of promoting access to antiretroviral drugs. However, since then, until 2018, the policy of accessing HIV antiretroviral drugs reverted to the top-down form as usual. This reflects that the government is still the main policy maker rather than the people's sector. However, without the strong public networks of policy makers above, in the past, people with HIV may not have had access to as much treatment as they do today.

2.1.6.5 Factors Catalyzing or Opening a Window of Opportunity In Accessing Antiretroviral Drugs in Thailand

From 1992 to 2018, it was 26 years before more than 80% of people living with HIV had access to antiretroviral drugs compared to the number of people living with HIV. Thailand has just been able to do so. This may have main factors including:

The first factor is the ability to produce antiretroviral drugs in Thailand by the Government Pharmaceutical Organization. Policy formulation from top to

bottom is set by the state. As a result, the price of HIV antiretroviral drugs is greatly reduced, and people have more access to them than before when they were unable to produce the drug.

The second factor is the designation of HIV and AIDS treatment as one of the universal healthcare coverage schemes, resulting from bottom-up policymaking by civil society networks. The people made demands on the government and the government responded to the needs of the people. Therefore, a top-down policy was established that the government later included in the universal health coverage policy. Both factors were catalysts and occurred during Thailand's universal healthcare coverage scheme.

The third factor is that the government's use of CL stems from the bottom-up policy formulation where people's networks made demands of the state, and the state's response to the policy later became a top-down policy. The government's enforcement of drug rights has resulted in very expensive drugs being destined to be sold at significantly lower prices. This allows the government to spend its budget on the purchase of drugs in larger quantities, and people have access to more drugs.

The Fourth factor is immediate antiretroviral therapy regardless of immunity. This is a top-down policy in which governments are under pressure from the World Health Organization. Traditionally, antiretroviral therapy was given only if the people had immunity or white blood cell counts. (CD4) according to the specified criteria modification to immediate antiretroviral therapy regardless of the level of antibodies or white blood cells (CD4) level required, As a result, people living with HIV have more immediate access to antiretroviral drugs.

The fifth factor is that having a clear strategy to determine the number of targets required for HIV antiretroviral therapy to meet the targets set by the United Nations as part of ending AIDS has led governments and relevant agencies to try to achieve the goals that are set within the time limit. This is not only the work of the government but also the achievement of this goal is the work of Thailand because it is a goal set by a UN high-level meeting. The success of Thailand shows the seriousness and sincerity that the world stage has tracked.

However, since the introduction of antiretroviral drugs into the public health system, various sectors and network partners, including the public, private, civil, and civil society sectors, as well as international organizations, have worked together to develop programs and policies to promote access to antiretroviral drugs. As a result, Thailand has been recognized by international organizations as a country of success in promoting access to antiretroviral drugs in the international arena compared to countries in the same region. The development of policies for promoting access to antiretroviral drugs in Thailand can be summarized as follows.

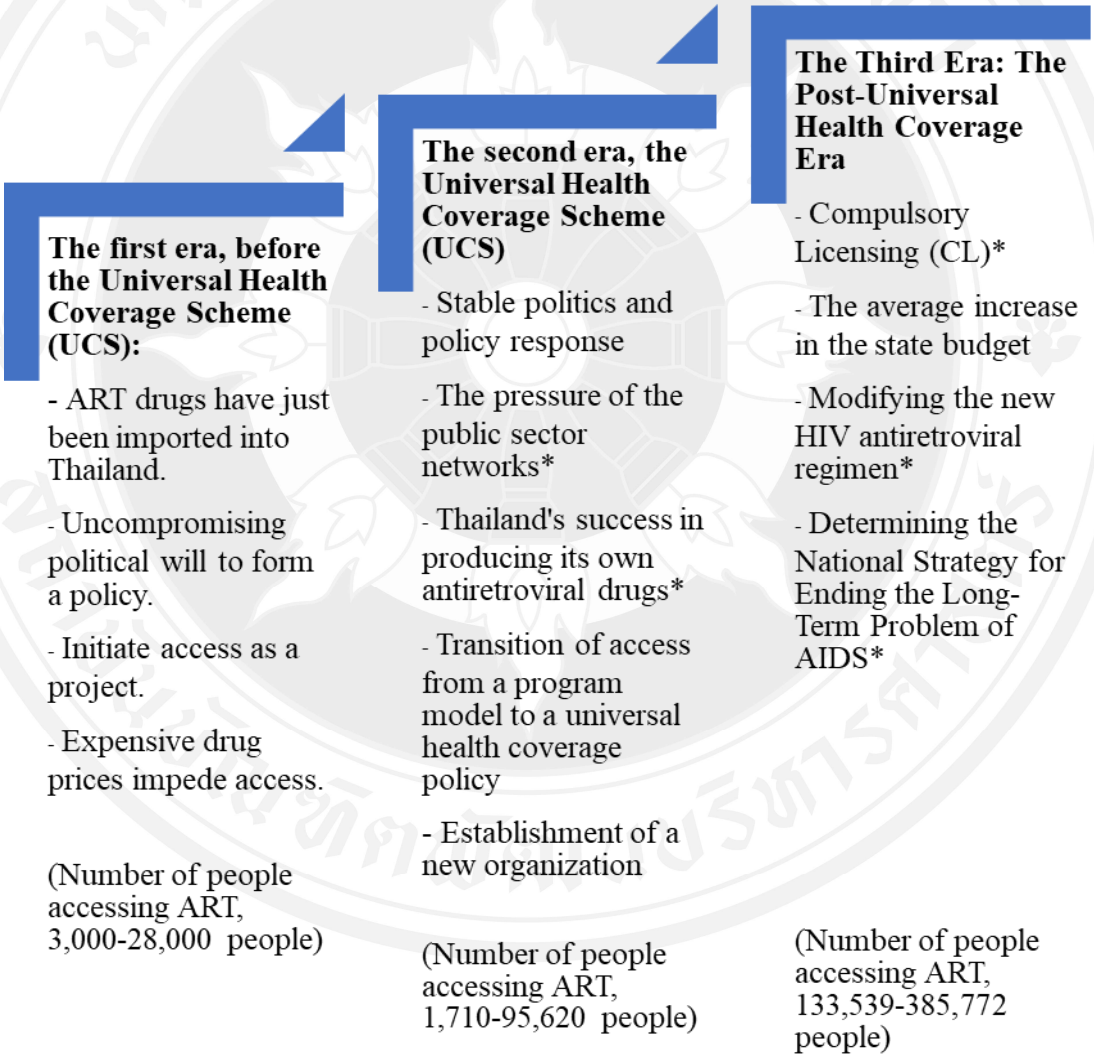


Figure 2.2 Summary of Policy Developments Promoting Access to Antiretroviral Drugs in Thailand

Table 2.2 Details of Each Government Era Regarding Policies on Access to ART in Thailand

| Periods | Governments | Policies |
|---|---|---|
| phase 1: Early Access to HIV antiretroviral Drugs 1991-2000 | General Chatchai Choonhawan (1991) | Raise the issue of AIDS as a national policy focusing on the control and prevention of HIV infection. |
| | Mr. Anand Panyarachun (2 March 1991 - 7 April 1992) | 1) Declare AIDS as a national agenda.<br>2) Appointing the National AIDS Prevention and Control Committee for the first time<br>3) Ensuring the use of antiretroviral drugs in all cases in both public and private hospitals<br>4) Exemption of import duties on antiretroviral drugs |
| | Mr. Chuan Leekpai (23 September 1992 - 13 July 1995) | 1) Formulate policies for the development of administrative systems and public health services in AIDS control.<br>2) Establish a project to access antiretroviral drug services (Antiretroviral Therapy: ART).<br>3) Implement a drug use policy to prevent mother-to-child AIDS and the provision of antiretroviral drugs for patients. |

| Periods | Governments | Policies |
|---|---|---|
| | Mr. Banharn Silpa-archa (13 July 1995-25 November 1996) | 1) Formulate a policy focusing on prevention campaigning and disseminating knowledge and creating awareness among people about the dangers of AIDS. |
| | Mr. Banharn Silpa-archa (13 July 1995-25 November 1996) | 2) Research on the AIDS vaccine for use in the prevention and treatment of AIDS |
| phase 1; Early Access to ART 1991-2000 | General Chavalit Yongchaiyudh (29 November 1996 - 9 November 1997) | Determine policies that emphasize the prevention of the AIDS epidemic for all at-risk groups and care, and develop the potential of people living with HIV, patients, families, and communities to know how to prevent the disease and manage themselves. |
| | Mr. Chuan Leekpai 9 November 1997 - 9 February 2001 | 1) Issue the Office of the Prime Minister's Regulations on the Prevention and Solution of the National AIDS Problems B.E. 2541 (1998). |
| | | 2) Establish a project to develop a service system and follow up on treatment outcomes for HIV and AIDS patients (triple therapy). |
| | | 3) Establish an access to care program (Access to Care-ATC). |
| | | 4) Set up a project to prevent mother-to-child. |

| Periods | Governments | Policies |
|---|---|---|
| Phase 2 The era of development towards universal health coverage 2001-2006 | Dr. Thaksin Shinawatra (9 February 2001 - 9 March 2005) | Determine policy to control the increase in the number of AIDS patients and the care of AIDS patients. Supporting the establishment of a disease control network at all levels<br>Expanding access to services for people living with HIV and AIDS. There was a resolution to be under the 30-Baht program for those infected to receive ART.<br>3) Develop antiretroviral regimens from mother to child. |
| | Dr. Thaksin Shinawatra (9 March 2005 - 18 September 2006) | Establish a national antiretroviral drug access program for HIV/AIDS patients (NAPHA).<br>Prepare an antiretroviral (ARV) opportunity expansion project to enter universal health coverage.<br>Develop a policy for accessing HIV antiretroviral therapy to be included in the universal health coverage system (for people with HIV that are Thai and have 13 digit numbers). |

| Periods | Governments | Policies |
|---|---|---|
| Phase 3; The era of Compulsory Licensing (CL) to end AIDS (Ending AIDS) 2007-2018 | General Surayut Chulanont (1 October 2006-29 January 2008) | Announcement of Compulsory Licensing (CL) measures |
| | Mr. Samak Sundaravej (29 January 2008 – 9 September 2008) | - |
| | Mr. Somchai Wongsawat (18 September 2008 - 02 December 2008) | - |
| | Mr. Abhisit Vejjajiva (7 December 2008 - 5 August 2011) | 1) Establish HIV prevention policies and reduce new HIV V infections.<br>2) Modify the medical criteria for HIV-infected people to receive ART faster and increase the treatment regimen. |
| | Ms. Yingluck Shinawatra (5 August 2011 -7 May 2014) | 1) The antiretroviral regimen was established at an immune response or a white blood cell (CD4) of fewer than 350 cells/mm3.<br>2) Determine measures to end AIDS Immediate HIV antiretroviral therapy, regardless of immunity or white blood cell count (CD 4). |

| Periods | Governments | Policies |
|---|---|---|
| Phase 3; The era of Compulsory Licensing (CL) to end AIDS (Ending AIDS) 2007-2018 | General Prayut Chan-ocha (22 May 2014-2018) | 1) Adding some antiretroviral drugs to the national list of essential medicines<br>2) Antiretroviral initiation policy for HIV-infected people with white blood cell counts (CD 4) at all levels, at all treatment eligibility levels. free of charge<br>3) A free blood test is required twice a year in government hospitals.<br>4) Prescribe preventive medications before exposure to HIV (Pre-Exposure Prophylaxis: PrEP).<br>5) Formulate a national strategy for ending the AIDS problem 2017-2030. |

## 2.2 Concept and Theory of Social Capital

### 2.2.1 Definition of Social Capital

The concept of “social capital” is a concept that has received a lot of attention from policymakers. As the saying goes "Seek less costly, non-economic solutions to social problems" (Portes, 1998). The concept of social capital has been discussed for some time, but it has become part of the trend. When American political scientist Putnum (1993). published his book “Bowling Alone,” it became the basis for the widespread analysis of social capital to be presented on this topic. This concept of social capital first appeared in the 19th century in economics writings, although it has many different meanings and is not consistent in terms of application (Faar, 2004, p. 10; Woolcolk, 1998, p. 159, as cited in Castiglione, Derh, & Wolleb, 2008). It remains controversial to this day as to how the definitions differ in context or point of view of academics (Alvarez & Romani, 2017; Castiglione et al., 2008). However, at that time, social capital was classified as physical capital and human capital. In economics, which is difficult to measure (World Bank, 2002a), the term physical capital, in particular, is part of the work of Marshall (1890), a neoclassic economist, in his book Principles of Economics. In addition to the production of goods based on supply and demand, he also discusses the classification of temporary and permanent commodity physical capital (Woolcock, 1998). The economic literature of that period did not explicitly mention social capital; the term capital was used only in economics. Because there is not yet a clear definition, it may be confusing to interpret and use the term.

In the 20th century, there was a shift in the definition of social capital. The first formal definition of social capital was given by Hanifan, an educator and state counselor at a rural school in West Virginia. He defined social capital as something tangible and countable, in which contributions were made. It is important in everyone's daily life, including goodwill, unity, compassion, and the social interactions between the individual and the family that form the unit of society (Hanifan, 1918, p. 130, 1920, p. 12 as cited in Nishide, 2009). Later, there were references to the meanings that Haifan had defined, but they were not studied or extended much. It is mostly just a reference to who and how the first definition of

social capital was, but it is still the basis of the concept of social capital to this day (Nishide, 2009).

Subsequently, the movement of the concept of social capital has expanded interest in the field of sociological scholars (Andriani & Christoforou, 2016). It was initially influenced by two important sociologists, Coleman (1990), an American sociologist who considered and defined the term social capital unlike others (Martikke, 2017), and Pierre Bourdieu (1930-2002), a French sociologist who remains influential in the field of sociology up to the present (Martikke, 2017).

Coleman (1988) had writing that was later widely referenced "Social Capital in the creation of human capital" published in 1988. Coleman (1988) defined social capital as its function was not a single character but had a variety of characteristics, consisting of elements and perspectives on social structure. Coleman (1988) was the first to empirically test social capital of What fosters the assertive action of social actors within the social structure. He was interested in exploring the choices of behavior at the individual level that could be influenced by the specifics of social network structure. He also paid attention to the socio-economic context and the social organization, especially the structure of social relations (Martikke, 2017).

Bourdieu, on the other hand, focuses on the connection between social capital and other forms of strata of social structure with an emphasis on resources (Martikke, 2017).Thus, social capital became one of the most popular concepts or theories in the social sciences from 1980 to 1990 (Abbasi, Wigand, & Hossain, 2014; Asian Productivity Organization, 2006; Yang, 2007)

The concept of social capital, which has been widely used around the world, is the work of Putnum (1993), who has been heavily referenced and studied. Putnam is a U.S. political scientist and professor of public policy at the John F. Kennedy Institute, Harvard University. His first work on social capital was "Making Democracy Work Civic Traditions on Modern Italy". He assessed the work of the Italian government in all 20 states. The results showed that in states with strong social capital, governments have better performance and level of development than states with lower social capital. States with strong social capital will also provide people with greater access to public health and education. Putnam (1993) defined social capital as the characteristics of social organization, such as trust, norms, and networks

that can improve the efficiency of society by acting in collaboration. His major work, Bowling Alone: America's Declining Social Capital (1995), is a political science study that deals with social capital and broadens the concept. This work states that social capital is directly related to behavior and the networking between individuals, social networks, norms, and trust (trustworthiness) between each other. The book was referred to worldwide as a bestseller. Later, Putnam and Goss (2002) further described social capital as referring to social networks and norms. These two support the joint operation of people in society. Therefore, social capital is a matter of social interaction.

Even during that time, there were many scholars presenting work on social capital. The idea of social capital was greatly stimulated by the writings of two prominent academics: Coleman (1988, 1990) and Putnam (1993) Grootaert and Bastelaer (2001). They defined social capital as being divided into two groups: the conceptual group of Putnam and the Coleman group. Coleman argues that Putnam's (1993) definition of group social capital was narrow. It looked at the horizontal (horizontal) relationships among people, consisting of social networking relationships and the connections among norms that affect community productivity. Another view was that Coleman's concept was a broad view of social capital and had a vertical relationship. It had the nature of a hierarchical relationship. There was unequal decentralization between members. This view of social capital was primarily based on large social structures. Putnam's ideas had also been criticized regarding some issues, including the statistical measure that Putnam used as evidence. The process of social capital creation and its effects on a personal level was inconclusive (Crossley, 2008). There was also a debate on whether the linkage of social capital directly affects quality of life (Lichterman, 2006; Portes, 1998). In addition, the argument was also included explaining how an organization creates social capital and argues that Putnam's concept of social capital had no political dimension (Szreter, 1999; Woolcock, 1998).

However, the definition of Putnam (1993) attracted attention. Although the definitions he had given were not clear enough. But it made academics and organizations be the base of most definitions and expands more widely. For example, the OECD (2001, p. 41 as cited in Nishide, 2009) defines social capital as a matter of

network connections, common norms, values, and understanding. It has the nature of group integration with a focus on social networks. In public policy, the term social capital focuses on the relationships among individuals, the organization, and the community. The relationships of social capital are trust, norms and networks that are characterized by harmonization between members of society (Nishide, 2006, as cited in Nishide, 2009). World Bank (2016) defines social capital in terms of institutes, relations, and norms, as well as trust, and values, with which the government interacts with people and promotes both economic and social development.

In addition, international organizations have attempted to adopt the definitions of Putnam (1993) and Putnam and Goss (2002), which refer only to trust and social networks. It has evolved into a more precise question to be used to collect quantitative data to measure social capital on particular issues. Since the beginning of the 21st century, for example, The World Bank (2004a) has created the Measure Social Capital: An Integrated Questionnaire, or SC-IQ, to measure social capital in developing countries around the world. It is also used as important information to define social capital as one of the strategies in the fight against poverty. Among the questions in the questionnaire that was created asked about people's trust, trust in local and federal governments, membership in organizations, networks, etc. Two other international organizations, the World Values Survey (2020), raised questions about social capital that focus on measuring trust or confidence in individuals. The Asian Barometer Survey (2001-2014) is another organization that focuses on measuring people's trust/confidence, trust in being close one’s and neighbors, institutions, participation in group activities, etc.

The interest in the social capital of academics and organizations has been studied and applied extensively. Thus, social capital has become a central concept in the social sciences used to interpret and analyze causal factors. It is a tool for policymakers at the local, national, and international levels in the process of policy change or policy adaption (Castiglione et al., 2008). It is worth noting that the concept of social capital has outstanding properties, both theoretical and applied in the social science literature for more than a decade Grootaert, Narayan, Jones, and Woolcock (2004). The definition of social capital from various perspectives of scholars and organizations is summarized and compared in the following table.

Table 2.3 Comparison of Definitions of Social Capital in Terms of Academics/Institutions

| Academics/Institutions definition | Confidence/trust | Network | Norm | Institution | Relation-ships | Values | Social Structure | Social Actors |
|---|---|---|---|---|---|---|---|---|
| Coleman (1988) | | | | | | | ✓ | ✓ |
| Putnam (1993, p. 167) | ✓ | ✓ | ✓ | | | | | |
| Putnam and Goss (2002, p. 4) | | ✓ | ✓ | | | | | |
| The World Bank (2016) | ✓ | | | ✓ | ✓ | ✓ | | |
| OECD (2001; p. 41 cited in Nishide, 2009, p. 3) | | ✓ | ✓ | | | ✓ | | |
| Nishide, 2009, p. 5) | ✓ | ✓ | ✓ | | | | | |
| Asian Barometer Survey (2014) | ✓ | ✓ | | | | | | |
| World Values Survey (2020) | ✓ | | | | | | | |

According to the table, the definitions of social capital that scholars use or that they use in an attempt to measure social capital have largely been influenced by Putnam's ideas. Most of the keywords are trust/trust, networks, and norms. However, the study or measure of social capital does not provide the full measure of social capital as Putnam had meant. In particular, the element of social capital addressed norms, which may have the possibility that such matters were rather abstract and difficult to measure. As mentioned above, academics or organizations that study social capital prefer to measure only the remaining components of social capital; namely, social trust, and social networks. Academics continue to support the social conviction and social networks which are considered two important attributes of social capital (Suebvises, 2018); in other words, social conviction and social networks. This is the core of social capital (Suebvises, 2018).

Thus, it can be concluded that the current definition of social capital refers to social trust/trust, comprising individual trust, specific trust, institutional trust, and affiliated memberships and social networks.

### 2.2.2 Components of Social Capital and Social Capital Measurements

According to Putnam (1993), the composition of social capital can be classified into three components: trust, norms, and networks. Although Putnam did not elaborate on the meaning of those words initially (Cook, 2005 as cited in Lin, 2008), it was later explained further by Nishide (2009), they have been summarized in describing the components of social capital as follows.

1) Trust can be categorized as follows:

1.1 Particularized trust, which is “thick” trust, is a type of trust in someone you know.

1.2 Generalized trust, or “thin” trust, is a type of trust in an unknown person. Trust is an emerging issue of social capital (Karen, 2005 as cited in Lin, 2008).

1.3 Institutional trust is trust in political or non-political institutions (OECD, 2020).

In this research, all three types of social sentiment are also measured, which will be discussed in the next section.

2) Norms are the psychology that people think and hold, such as rules and standards established by mutually understood actions and shared values. Norms are a variety of interactions that can be exchanged between people.

As for perspective, it is quite abstract and difficult to measure. Most research on social capital in the past did not like to measure such variables because academics are not the core of social capital. Therefore, normative variables also are not measured in this study.

3) Networks are about the structure of the relationships between individuals and groups. They are the connections among individuals, groups, organizations, and communities. The social networks in this study are identified as one of the parameters to test for social capital, which will be discussed in the next section.

Putnam and Goss (2002) categorize social networks into four categories: formal, informal, inward-looking, and outward-looking. Social capital is related to the promotion of social networks, including the number of members, frequency of meetings or meetings, interest in joint activities, etc. (Grootaert, 1998). Social capital is created when individuals are involved or have an exchange of relationships with each other (Coleman, 1990 as cited in Lin, 2001) . Individuals who are members of the network benefit from the network with direct access to resources and benefits (Alvarez & Romani, 2017).

Social networks can also be divided into two major groups. The first is a vertical network or vertical network, which is characterized by a chain of relationships and unequal decentralization among members. Second, the horizontal network, is not a chain of command; there is equitable decentralization among members (Grootaert, 1998), with most social networks a combination of vertical and horizontal networks (Putnum, 1993).

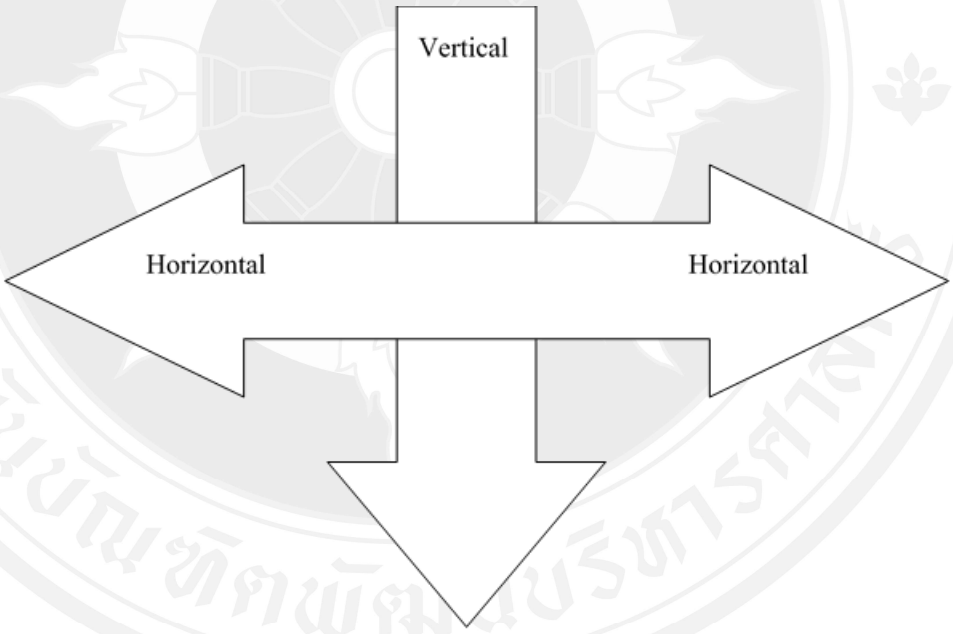


Figure 2.3 Vertical and Flat Networks

In addition, social networks can be categorized into bonding and bridging, both of which discuss the strengths and weaknesses of each type. A bonding network is a network of people with similar characteristics (homogeneity). It comes together (Leonard, 2004; Nishide, 2009; Nyqvist, 2009) to form a close social bond (social

glue) within a group, and a sense of solidarity among members. It is characterized as a closed group (Nishide, 2009), such as a relationship with a friend or family member (Martikke, 2017; Story, 2013), religious group members (Alderidge, Halpen, & Fitzpatrick, 2002), neighbors, associations (Nishide, 2009) or similar age groups, same sex, same social class Putnam and Gross (2002), same race, and same residence. There are strong social networks in which individuals share similar social identities (Story, 2013, p. 3). The bonding network is therefore a network within a community (Kawachi, Subramanian, & Kim, 2008; Sen, Aguilar, & Bacchus, 2010). The advantages of this type of network are to encourage everyone to be united. However, the downside is that it can be uncomfortable and sluggish. (Putnam, 2000 as cited in Martikke, 2017). argues that bonding networks lead to narrow social capital and do not encourage recruitment among members.

Bridging networks are groups of people with dissimilar characteristics (Nyqvist, 2009; Putnum & Gross, 2002; Story, 2013). (Nyqvist, 2009; Story, 2013). The heterogeneity and diversity of individuals and groups (Nishide, 2009) are characterized by outward-looking and expansive networks (Martikke, 2017) with external exposure (Nishide, 2009), for example, committees of unfamiliar organizations, friends of friends (Alderidge et al., 2002), non-profit organizations, and environmental groups (Nishide, 2009). Unlike bonding networks (Putnum & Gross, 2002), such networks produce positive external impacts, which are mutually reinforcing and broadly integrated. Being willing to welcome new members and fostering widespread social capital are characteristics of this type of network (Putnum, 1995). Regarding the bridging network, it is trusted because it can improve community collaboration. The cause is the coordination between groups that are not related to each other but can mediate and link them together (Martikke, 2017). Bridging networks create general trust and norms. This makes them accessible to diverse resources and creates innovation (Nishide, 2009). Bridging is a social network outside the community (Sen et al., 2010).

### 2.2.3 Measurement of Social Capital

Sabatini (2009) discusses several issues in the social capital literature: lack of appropriate data, lack of universal measurement, social capital bias, multidimensional

conception, and no boundaries of clarity. There are clear empirical arguments on the issue. The lack of proper information on social capital and the lack of universal metrics may not be what Fabio Sabatini has presented. Even though in the early stages it may be that, as is typical of the growth phase of ideas or social capital theory, there is a lack of appropriate information and not yet universally measured. Because each scholar creates his or her own method of measurement, however, over time the method of measuring social capital is developed into a more universal measure. In addition, there has been continual development from international and global organizations such as The World Values Survey, the Asian Barometer Survey, and the World Bank, which have been working on academic studies and developed it as a tool to measure social capital since 1981 until 2016, and such tools will likely be developed in the future as well.

The World Values Survey is an international research project with members of social science scholars from 120 countries. This project focuses on the study of the social, political, economic, religious, and cultural values of the peoples of the world. A questionnaire has been created to measure social capital continuously from 1981 to 2021, focusing on measuring trust or confidence in the general public (World Values Survey, 2020). One organization in Asia has also created a tool to measure social capital universally, the Asian Barometer Survey (ABS). It is an applied research organization that aims to measure public opinion on issues such as political values, democracy, and governance across Asia. The organization has raised the question of social capital from 2001-2016, focusing on measures of public trust/confidence, trust in people and neighbors that are close, and institutions including participation in group activities (Asian Barometer Survey, 2014).

Around the same time, 2000/2001, efforts were made to develop a tool to explore social capital and implement a poverty reduction strategy by the World Bank. The World Development Report identifies key pillars leading to poverty reduction strategies. Social capitalization has been placed at the core of the agenda to support institutional reforms for the poor and to remove social barriers (World Bank, 2002a). Households in developing countries are surveyed to guide the design and implementation of effective poverty reduction strategies (World Bank, 2004a). In addition, the World Bank (2006) has created a guide on how to use quantitative

research methods and data collection to analyze social capital in various contexts. It describes the methods for collecting both quantitative and qualitative methods, comparing the advantages and disadvantages of both methods, using the two methods of data collection together, and dealing with the process of data collection and data analysis. This fact does not mean, according to Sabatini (2009), that the social capital literature has the problem of a lack of appropriate data or a lack of universal measurement.

As for another issue, there is a debate about the multidimensional base of social capital. It may seem like a weakness of social capital, but Coleman, an influential scholar in the areas of social capital, has argued that social capital by its function is not isolated. There are a variety of different characteristics with the two components that share it. It consists of the nature of the social structure and certain actions of the actors. If an individual or group is contained within a structure, it will benefit (Coleman, 1988). There are, therefore, a variety of concepts to suit each science or context in which it is to be applied. The scope of the concept is therefore not fixed according to the context. This is not a problem of the present and future social capital literature, as stated by Sabatini (2009).

Additionally, one of the key questions being discussed in the social capital academic community is what the root of social capital is. Lin (2008) suggests that the root of social capital is social networks. Social capital scholars measure the level of social capital based on social networks, i.e. the integration of individuals, which results in interpersonal relationships (Suebvises, 2018). Norms and trust are classified as cognitive processes or thought processes of social capital. Trust is central to social capital, although much research has not measured it (Glaesser, Laibson, Scheinkman, & Soutter, 2000). Social trust is a collective attitude that leads to increased cohesion and resulting in stronger work performance (World Bank, 2015; pp.1-4 as cited in Suebvises, 2018).

However, academics still support social networks and trust; they are considered two important attributes of social capital (Suebvises, 2018). Social trust and social networks are at the core of social capital (Suebvises, 2018), where both components are related to each other. Social networks create exchange norms and foster social trust. Social trust also helps to build social networks (Suebvises, 2018).

Therefore, social capital must be measured according to social networks and trust. Therefore, it is considered a measure of social capital. Although most empirical work indirectly measures social capital, social capital is rarely measured by the main components of social capital, which consist of the social networks, social trust, and the norms discussed above (Sabatini, 2009). The social network measure focuses on formal and informal social networks. Informal social networks promote social capital better than formal social networks. As for the measure of social trust, it is measured by general trust and specific trust (Suebvises, 2018).

In this study, only bonding, bridging, and social sentiment were measured. This is a social capital measure of the same type as the study by Wun'Gaeo, Jumnianpol, Charoenratana, and Nuangiamong (2014), which has also been studied in Thailand. This research aims to test whether social capital influences access to antiretroviral drugs in Thailand. The study of social capital, only defined in Putnam (1993), is based on the idea that having strong social capital will give people access to public services. This is in line with the research of Ploy Suebvises (Suebvises, 2018), which examines social capital, and people's participation in public administration and government operations in Thailand, published in the last 21$^{st}$ century.

From the measurement of dependent variables, which is a performance of the state, which focuses on the performance of basic public services, it was found that in terms of access to public health services for Thai people, there is not a very high standard; the percentage of public healthcare facilities in many areas is very low. As for the ratio of doctors to the population, the burden is too high (Suebvises, 2018).

From the above, it can be considered that the theory of social capital is one of the theories that has been applied to explain various social phenomena and that has received a lot of attention in the social sciences. There have been attempts to measure social capital. This is a measure at the core or root of social capital; namely, social trust, and social networks.

## 2.3 Concept of Benefit Incidence Analysis

### 2.3.1 Importance of the Concept, Background, and Principles

Benefit incidence analysis is a quantitative method for assessing the distribution effect of government spending on healthcare and healthcare spending compared to the distribution of socio-economic benefits. It analyzes estimates of government subsidies that vary by income. Individual subsidies are the difference between costs incurred by government service providers and fees paid by users (Wagtaff, 2010). Ideally, this state budget should be distributed to the lowest socioeconomic groups. Distribution analysis is necessary to assess the extent to which government spending is focused on this group (DP, 1995), including whether this benefit distribution is appropriate and whether the benefit is distributed according to needs (Mcintyre & Ataguba, 2011)

Because of this feature, BIA is used in many developing places for assessing the effectiveness of those countries' fiscal policies to support or foster economic growth, expand opportunities, and accelerate economic growth, and fight against poverty. While there is much literature on tax incidence and benefit incidence, research efforts that look at public expenditure and tax implications in the context of low-income and middle-income countries is still very few limited (World Bank Group, 2017).

Many developing countries face challenges in designing fiscal policy and implementing fiscal policy because the economic differences are quite high. Those developing countries do not have progressive tax rates and do not have effective tax administration, particularly on income distribution Alesina (1999); Zee (1999); Atkinson (2000); Chu, Davoodi, and Gupta (2000); Tanzi and Zee (2000) as cited in Davoodi, Tiongson, and Asawanuchit (2003). Those countries also have the limited administrative capacity and few practical tools for distributing income, including indicators of the welfare that the state has allocated to its people (Tanzi, 1988; Chu, Davoodi, and Gupta, 2000; Bourguignon, Silva, and Stern, 2003 as cited in Davoodi, Tiongson, & Asawanuchit, 2003)

Those countries tend to distribute some of their resources through state budgets, transforming them into life essentials by providing social services such as education, healthcare, and social safety (Davoodi et al., 2003). Including Thailand, this is due to the lack of access by low-income households, especially in terms of education and

public health (Bastagli, Coady, & Gupta, 2012). Projects are therefore prioritized for the benefit of the poor (Estrada et al., 2014). Expenditure on education, public health, and social work tends to increase steadily. Increasing access to education and public health services is also important for enhancing human capital. Empirical research has shown that both the poor and the rich benefit from public spending, especially in terms of government budget expenditure on education and public health. The poor benefit more, which may not be true (World Bank Group, 2017).

Therefore, the theory of public expenditure has focused on the distribution of benefits of public expenditure, raising the question of how governments should distribute benefits to achieve fairness and to maximize the benefits for society. (Buracom, 2013). One metric that is used to measure the benefits from government spending is known as benefit incidence analysis (Lionel, 2000), as mentioned earlier. This concept measures the amount of the benefits that different groups of people with different incomes receive according to their economic status from public projects. (NaRanong, NaRanong, & Leckcivilize, 2007). This is because government taxation often creates a tax incidence on different groups of people of different economic backgrounds. Government budget expenditures are also often positive for different income groups. Government projects or public budget expenditures have the potential to have an impact on increasing or reducing inequality as well (Thailand Development Research Institute, 2014) especially public expenditure on education and public health was found to be able to reduce income inequality (Estrada et al., 2014).

### 2.3.2 Guidelines for Conducting Benefit Incidence Analysis

From the benefits derived from the benefit incidence analysis mentioned above, the process of analysis was applied according to the context studied according to the following steps (Mcintyre & Ataguba, 2011).

1) Choose a measure of living standard or socio-economic status (SES) and rank the population from poorest to richest.

2) Estimates of the use of health services of various types of health by different socioeconomic persons/groups (services such as primary care clinics, district hospitals, regional hospitals, and central hospitals in the case of government sectors

and private sector services may be considered, such as general practitioners, specialists, retail, pharmacies, and private hospitals).

3) Calculate the cost per each type of health service unit.

4) Utilization rate multiplied by unit cost for each type of health service for each individual/social group

5) If only the distribution of public subsidies is considered, direct user fees or payments for individual health services shall be deducted for each individual/socioeconomic group.

6) The collective benefit of utilization (or public subsidies) is expressed in the form of monetary contributions to the various types of health services for individual/social socioeconomic groups.

7) Compare the distribution of health service benefits (or of public subsidies) to distribute some of the goals (e.g., relatives that need healthcare).

### 2.3.3 Concepts Related to Benefit Incidence Analysis

The concepts related to the distribution of benefits of public expenditure can be summarized according to three key concepts (Buracom, 2013); namely, the principle of distribution of benefits of public expenditure following the Pareto's optimal theory. Regarding income distribution and instability principles, the society can obtain maximum welfare that will occur only if such distribution of income and security can benefit everyone in the society, or at the very least distribute income to other groups better. Later, welfare economists suggested that governments should play a role in the distribution of income by spreading the benefits of state expenditures to the poor, which would create social welfare. It also creates social security (a safety net) for all people in society. For example, when the economy is depressed, social welfare allocated by the state can alleviate the difficult situations that they are experiencing. In addition, the distribution of benefits also helps to create social stability, because if the state allows the people to be poor, they may cause social problems that affect the public, such as crime or social chaos. The distribution of benefits to the poor therefore benefits both the rich and the poor—it brings peace to society as a whole.

The equal opportunity theory of John A. Hobson and Artur C. Pigou proposes that governments should allocate public expenditures for a fairer distribution of

income. The idea is that everyone should have equal opportunities to earn income and that everyone should have an equal starting point. This idea emphasizes that governments distribute benefits from public expenditures to people of lower socioeconomic status to give the poor more equal opportunities.

Considering the above concepts, it suggests that the government should play a role in income distribution and security for the benefit of society, especially regarding the distribution of benefits to socially disadvantaged people. Therefore, in order to measure the benefits that citizens receive from state budgets by analyzing different income tiers, who benefits? This is a very important issue (Thailand Development Research Institute, 2014). In particular, the government's target audience for public or social services is the poor (Buracom, 2016; Estrada et al., 2014; Younger, 1999). However, it is uncertain whether the benefits from public expenditures are distributed to them (Buracom, 2016; Estrada et al., 2014); it cannot be certain that the benefits from public expenditures are distributed evenly among different groups of people (Buracom, 2011, 2013; Davoodi et al., 2003). Benefit incidence analysis is, therefore, an important and useful tool to answer such questions (Buracom, 2011, 2013; Davoodi et al., 2003).

Benefit incidence analysis is an easy-to-use tool for designing, monitoring, and evaluating the effectiveness of social project expenditures after they have been implemented. Benefit incidence analysis has been applied in various countries. The World Bank has also introduced benefit incidence analysis as part of its toolkit for analyzing poverty and the social impact of economic policy (Davoodi et al., 2003).

Regarding studies on benefit incidence analysis, it has a long history (Selden & Wasylenko, 1992). The initiator of the idea was Gillespie, who analyzed the effects of social expenditure in Canada in 1964 and the United States in 1965 (Davoodi et al., 2003). in the concept of benefit incidence analysis has increased dramatically as a result of McNamara's idea (1972). He proposed that government expenditures could alter the distribution of income and standard of living to the poor in developing countries, McNamara's concept of shifts to the traditional form of public expenditure, which is considered one of the most effective ways to improve state budget spending towards the poor (Selden & Wasylenko, 1992). Subsequently, the methodology of benefit distribution analysis was presented. It began with two research studies. The

research in developing countries was that of Selowsky (1979) in Colombia and Meerman (1979) in Malaysia. Both of these works have been re-examined in multinational case studies (Buracom, 2016; Davoodi et al., 2003). It is also considered a highly detailed work of the prototype of the benefit incidence analysis methodology (Davoodi et al., 2003). In addition, the two excellent surveys of the benefit incidence analysis methodology (Davoodi et al., 2003). are the research of Demery (2000) and Younger (1999) studies (Buracom, 2016; Davoodi et al., 2003).

## 2.4 Related Research

The objective of this research is to study social capital and access to ART. It also analyzes the distribution of benefits of policy promoting access to ART among populations with different income levels in the National Health Security System in Thailand. The researcher, therefore, reviewed the relevant research work as follows.

### 2.4.1 Social Capital on Public Health and HIV

A study of social capital factors and access to HIV antiretroviral drugs found that social capital, a social science concept, was used to test the role of interdisciplinary social capital in the public health process. Its cross-disciplinary approach (Song & Lin, 2011) makes social capital an increasingly popular concept in international public health research (Harpham, Grant, & Thomas, 2002). In Pubmed, the term Social Capital and Health revealed 27,500 articles related to 2006 data (Kawachi et al., 2008). Later, Springer's book on Social Capital and Health or Public Health was written by Kawachi, Subramanian, and Kim (2008). The theme of the book presents what social capital is and how social capital can be measured, what has been learned about the empirical relationship between social capital and specific health outcomes, and what the benefits of social capital in designing population health improvements are. Further, more recently in 2020, Tutu and Busingye (2020) have written a book called “Migration, Social Capital, and Health”, published by the same publisher. The presentation discusses the direct and indirect contexts on the dynamic migration and ecosystem of diseases with interactions among social capital, lifestyle, health knowledge, and health outcomes in two developing countries, Ghana and

Uganda. The above information is indeed an example that confirms that social capital has received no less attention in public health than the social sciences.

The research that puts social capital to test public health ranges from global organizations to general scholars in different countries. For example, Rocco and Suhcke (2012) study looked at Is Social capital good for. health A European perspective? This research describes the positive role that social capital plays in determining health; for example, having social capital improves access to information about public health or wellness. This is because having social capital leads to interactions between friends, family, or group members. When these individuals talk, they will have access to more public health information, be able to prevent diseases that will occur, as well as having access to information to participate in the organization of better health services. Following Hombres, Rocco, Suhrcke, and Mckee (2010), social capital is associated with health. If an individual has a level of positive conviction, it will lead to good health.

The approach of social capital is also being used to better explain public health and public health policymaking. For example, the work by Ogden, Morrison, & Hardee (Ogdens, Morrison, & Hardee, 2014), published in the Oxford University Press journal Health Policy Planning, presents the idea that social capitalization processes can support public health policy processes and strengthen health systems.

This research indicates that since social capital facilitates communication between practitioners and the community, it is a process of listening to the voice of the community; therefore, various projects are effective. This is because both public health workers and people in the community will gain an understanding of new concepts and norms and standards among people with local knowledge and health workers. This allows for interactions among groups on issues that can still be addressed for policymakers to address unsolved issues. The literature discusses social capital in terms of public health systems in general. However, when an in-depth review of the literature on the application of social capital to the prevention and treatment of HIV and AIDS was conducted, it was found that several studies were conducted on several issues.

Ransome, Thurber, Swen, Crawford, German, and Deanc (2018) reviewed the literature on empirical studies examining the relationship between social capital and

HIV/AIDS in the US by searching PubMed, Embase, PsycINFO, Scientific Web, and sociology without limiting the date of publication. The study found 1,581 unique works, and in 2003 began publication of Social Capital and Relationships with HIV/AIDS. The study was up to 2017. A review of the literature found that more than half focused on diagnosis, followed by prescribing and adherence to antiretroviral therapy and its association. Caring for 58% of people with HIV according to the literature, social capital is one of the measures of HIV prevention and is associated with treatment outcomes. This work indicates that social capital can be an important factor in HIV/AIDS prevention, prevention of transmission, and the effect of treatment.

A review of related research also revealed that social capital was studied in the context of testing or explaining the phenomenon of HIV/AIDS public health services. Issues included social capital and prevention, living with HIV or AIDS, improving quality of life, reducing the stigma of HIV, improving access to healthcare, and treating people with HIV. The key points are summarized as follows.

2.4.1.1 HIV Revention

Frumence, Killewo, Kwesigabo, Nystrom, Erikssion, and Emmelin (2010) investigated the role of the perception and structure of social capital in Tanzania on HIV/AIDS and found that social capital plays a role in preventing the spread of HIV in Tanzania. Both the perceived role of social capital and the structure of social capital influence HIV transmission. This confirms the first hypothesis was formal and informal organizations. (a measure of the structure of social capital in which members share health-related information) that improves knowledge, skills, and practice among group members about HIV. The second research hypothesis, the role of social capital recognition (it is a measure of the perception of social capital, meaning its interaction over time, how members develop norms, values, trusts, and passive relationships). It creates an environment in which members can protect themselves against HIV, in line with a study by Johnson et al., (2010), which found that social capital influences behavior change in reducing risk against HIV infection and the prevention of HIV infection.

In HIV prevention, social networking is very important. According to a study by Johnson et al., (Johnson et al., 2010), which highlighted the study of social

networking, this is one of the components of social capital affecting HIV prevention. It has proposed a very effective HIV prevention model called the Network Individual Resource, or NIR Model, based on the trust of their networks. The protection outcomes will be very successful and sustainable; it depends on the resources of the individual, or the process of the network meeting between the people in the network and the needs of the network. Therefore, social networks have the effect of helping to prevent the spread of HIV in another way. The most tangible social network is the community. One interesting study, that of Campbell et al. (2013), focused on social capital and the role of groups of the community in their capacity in terms of HIV management in Zimbabwe. Zimbabwe is a country that has experienced a reduction in the amount of HIV prevalence since 1990, with the community playing a significant role. The roles of different groups of the community have significant implications for the response to HIV/AIDS. Participation in formal community groups, including churches, women's groups, and informal local networks, such as neighbors and families, are involved in providing opportunities for dialogue on HIV and AIDS and promoting dialogue on violence or social norms about violence. The exchange of personal experiences on HIV/AIDS also promotes the formation of action plans and unites the community regarding HIV/AIDS management, infection prevention in a variety of ways, and promotes access to health services and care for people living with HIV.

2.4.1.2 Quality of Life: Good Health

A study in the Asian context, in the People's Republic of China, by Lan et al. (2016), found that in southeastern China, trust, the social capital dimension, has the greatest influence on both the physical and mental of those living with HIV. People with lower social capital have inferior physical and mental qualities than those with higher social capital as a result of the frequency of contact with family and relatives and the number of close friends, colleagues, and neighbors. This is important for improving mental quality, and healthcare contributors may have greater trust in the organization of services and access to resources than less engaged individuals.

A study by Fei Xie, Zheng, Huang, Yuan, and Lu (2019) found that bonding networks had a positive impact on physical and mental health. This may be because the love and cooperation of family members have helped them to reduce their

fear of ridicule, discrimination, and even lower mortality. In addition, additional support and assistance from peers are also important for those living with HIV, making them feel like friends. It is emotional support that greatly reduces one's mental pressure. However, bridging networks have shown no significant effect on physical or mental health.

The findings contradict the concept of social capital; however, it is interesting to note that bonding networks may have a greater positive effect on some diseases than bridging networks, although it can cause negative consequences in cases where people in the network do not have the correct knowledge of HIV/AIDS or have a negative attitude.

Both works measured social capital and overall HIV/AIDS treatment outcomes. They do not delve into the issue of antiretroviral drugs when measuring social capital and outcomes in terms of quality of life. The primary focus is on measuring social capital and the relationship of antiretroviral therapy. Musanse, Charalanbous, and Neison (2017) wrote a research paper on the relationship between social capital and the outcomes of HIV antiretroviral therapy in South Africa. It was the first study to measure the relationship between social capital and the outcomes of antiretroviral therapy. The results showed that having more social capital had a better effect on treatment outcomes.

As social capital levels increase, treatment outcomes improve. Patients with high social capital are more likely to have confidence in their treatment. Individuals with middle and higher social capital are at less risk of treatment failure than those with lower social capital. This is because patients can overcome their illness when they are encouraged by their network and group members and given advice on diet and exercise. Another very interesting work confirming that social capital influences the importance of antiretroviral therapy is that of Binagwaho and Ratnayake (2009).They studied the role of social capital in the successful implementation or prioritization of antiretroviral therapy in Africa. From this study, it was found that in the late 1990s and the early 21$^{st}$ century, some health officials in the Western world believed that Africans would not follow antiretroviral therapy because the population was uneducated and illiterate. However, this is not so when Africans overcome economic difficulties by begging or borrowing from their families for HIV

antiretroviral therapy. Patients are more in need of money to spend on travel to treatment appointments than to buy food and walk to clinics to get antiretroviral drugs despite their distance. Moreover, the service staff is willing to open clinics for longer periods of time in order to wait for those in remote areas. The results of the study show the importance of social capital (interaction) in the successful implementation of antiretroviral therapy in Africa.

A review of the relevant empirical work above reveals that there has not been much study where social capital factors have been tested regarding its influence on antiretroviral therapy. This is especially true of the measure of the details or roots of social capital, which consists of social trust and social networks. This is because previous work has looked at issues of social capital and HIV prevention, the physical and psychological health outcomes of social capital, or broad measures of social capital and has not comprehensively delved into the essential elements. Therefore, regarding the issue of studying the relationships among social capital and access to antiretroviral drugs there are gaps in the research that should be filled. This could help develop a broader social capital concept and may be helpful for policymakers to take into account more patients accessing antiretroviral therapy in the future.

### 2.4.2 Research Related to Benefit Incidence Analysis

According to the literature review, it was found that in benefit incidence analysis, most of the public expenditures in education and public health have been studied, except for a few other studies, such as that of Meerman (1979), analyzing the distribution of benefits regarding water, electricity, sewage, or that of Selowsky (1979) analyzing utilities, agriculture, including Buracom (2016), where social work expenditures were analyzed. However, the three scholars continued to analyze public expenditure on education and health as well. In terms of the nature of benefit incidence analysis, the majority were grouped into five income tiers, from the lowest income to the highest income. Some works were grouped into four income tiers. However, in benefit incidence analysis, it can also be grouped into 10 income classes, as seen in the work of Buracom (2013), Naranong (2007) and the Thailand Development Research Institute (2014). However, benefit incidence analysis is

mainly focused on household income analysis, or state budget and public income analysis, or may be collected for other analyzes at the individual level (Selden & Wasylenko, 1992), such as age, gender (Person, 2002), and level of primary education or higher education. Other variables were also identified in the analysis: region, size of the city, differences in urban-rural areas, public-private school type, patient type (inpatient, outpatient), nursing home type, types of healthcare services, etc. It was shown that in the analysis of the distribution of benefits, apart from using income variables, an analysis of state expenditure budgets can also be analyzed, and other variables can also be used, which will provide a definitive answer to who benefits from those public spending allocations.

What has rarely been seen in the benefit incidence analysis is the analysis of the right to healthcare access, except for the work of Naranong, Naranong, and Leksivilai (2007). The aforementioned issue, however, is a study of the 30-Baht policy to treat all diseases; it is not specific to the HIV antiretroviral drug access policy. Therefore, it was found that there is still a gap in applying the concept of benefit distribution analysis to the analysis of the healthcare rights of different income groups and how the benefits are distributed.

For the research in which benefit incidence analysis was applied to analyze the distribution of budget benefits or public expenditure on education, it was found that those that benefited from public expenditure on education only at the primary level would benefit more for poor households than high-income households. This study is consistent with studies by the Asian Development Bank (Estrada et al., 2014; Djahini-afawoubo (2016); Bastagli, Coady, and Gupta (2012); Si, Chen, and Palmer (2017); OKafor and Ichoku (2015); the World Bank (2017); Guloba (2011); GlinsKaya (2005); Warr, Menon, and Rasphone (2013).

However, one group of researchers found that government expenditure on education, particularly primary and secondary education, was more favorable to poorer households (Buracom, 2016; OKafor & Ichoku, 2015). However, when analyzing the distribution of benefits from public expenditure allocation in higher education, it was found that it favors wealthy households more than poor households (Buracom, 2016; Guloba, 2011; World Bank Group, 2017; Younger, 1999). Additionally, including all public spending on education, wealthy households benefit

more (Buracom, 2016; Davoodi et al., 2003; Meerman, 1979; Mitra, 2015; Selden & Wasylenko, 1992; Selowsky, 1979; Younger, 1999).

The government's allocation of public health expenditures in the past has been debated with different study outcomes. One group found that public health expenditure favors wealthy households more than poor households, such as the work of Meerman (1979); Davoodi et al. (2003); Buracom (2011, 2016); Lai et al. (2018); Khan, Ahmed, MacLennan, Sarker, Sultana, and Rahman (2017); Wagtaff (2010) Chen, Fang, Wang, Wang, Zhao, and Si (2015); Castro-Leal, Dayton, Demery, and Mehra (2000); GlinsKaya (2005). Specifically, the ASEAN region has a more favorable distribution of benefits for the rich than the poor (Wagstaff, Bilger, Buisman, & Bredenkamp, 2014), consistent with the study by Donnell et al. (2007), which researched the impact of public expenditure on healthcare systems, comparing 11 Asian countries. This research found that the distribution of public expenditure on healthcare systems benefits the rich more than the poor in most developing countries.

However, one study found that the results of the other group had the opposite of the first group's findings. It presents that the poor and poorest households benefit from larger government allocated public health budgets than wealthy households, such as the work of Sparrow, Suryahadi and Widyanti (2013); Halasa, Nassar, and Zaky (2010).

Public health expenditures for primary healthcare services are more favorable to poorer households. Meanwhile, poor and moderate households are more likely to use the services than wealthy households Qin et al. (2018); Si et al. (2017).

It was also found that inpatients and outpatients of different socioeconomic backgrounds benefited from different countries' public health expenditure allocations, such as Qin’s et al. (2018). A study in China found that wealthy inpatients and outpatients benefited more than poor inpatients and outpatients. A study by the Islamic Republic of Afghanistan Ministry of Public Health (Islamic Republic of Afghanistan Ministry of Public Health, 2013) found that wealthy inpatients benefited more than poor inpatients. Poor outpatients, on the other hand, benefit more than wealthy outpatients. A study by Warr et al. (2013) in Laos found that wealthy inpatients benefited more.

However, an interesting paper published by the World Bank (Wagstaff et al., 2014) found that the allocation of the majority of healthcare expenditure 60% (40 of the 69 surveyed countries) would not benefit either the poor or the rich. This is contrary to other literature presented here. The results of studies in each country may differ depending on the context of each country in terms of society, economy, politics, and administration. This includes various factors that may affect the implementation of the policy, and the selection of data analyzes may differ from this literature. It remains unclear whether such distribution of benefits would favor wealthier or poorer households. The results of the above studies reveal that both poor and wealthy households benefit from the distribution of education and public health benefits.

The focus of this research is on public health, especially on access to antiretroviral drugs. Based on the literature analysis, only two studies have applied the benefit distribution analysis concept. The work of Onwujekwe et al. (2008) found that the majority of benefits relied on urban residents rather than rural and poorest people. Females benefited the most, but because in this study, four income tiers were stratified from poorest to least poor. It was not categorized into middle, rich, or richest income strata. Tran et al. (2016) found that the rich benefited more than the poor from following antiretroviral therapy, while the poor benefited greatly in the early stages of treatment. Profession and level of education were associated with disparities in access to HIV antiretroviral drugs.

In Thailand, there is little research that looks at the benefit incidence analysis and access to antiretroviral drugs. The United Nations Development Program (United Nations Development Programme, 2017) did a study entitled The Journey of Universal Access to Antiretroviral Treatment in Thailand. In this study, the scope was to study the Universal Health Coverage Scheme and access to antiretroviral drugs only. It was found that although Thailand has had the Universal Health Coverage Scheme since 2002, the government wants people that are economically poor to be able to access healthcare and benefits from it. However, it also covers financial risks in healthcare for both the rich and the poor. The rich benefit as well while the poor benefit more, but the government wants those benefits to be distributed more to the poor. Including the study of Naranong (2007). an analysis of the distribution of benefits from the 30-Baht Cure for All Diseases project, National Development

Research Institute (2014), it was studied the benefit distribution analysis of the State Budget for Public Health, Education, and Transportation and Transport, Buracom (2013) studied the factors influencing changes in public expenditure and the distribution of benefits of public expenditure in Thailand.

An interesting point, and still a gap in the research, is that it remains unclear what level of income class in Thailand benefits from a free antiretroviral treatment policy. Especially for those that have different rights to medical care, to which group of people does the benefit from the distribution of benefits fall? Which areas of public health services in the country benefit from the policy? Therefore, the distribution of benefits for access to antiretroviral drugs has not been demonstrated, despite governments around the world trying to promote access to antiretroviral drugs for people in their countries to have more access to treatment.

The benefit incidence analysis in this research is therefore a useful tool in answering the question of whom among different socioeconomic statuses benefit (Mcintyre & Ataguba, 2011). It will show that households in various income classes and how they benefit the government (Burakom, 2013). What are the differences in whether HIV-infected poor or wealthy individuals benefit from such policies? The concept of benefit distribution analysis to be used to answer the questions in this research is therefore considered very appropriate.

# CHAPTER 3

# RESEARCH METHODOLOGY

This research on a policy to promote access to antiretroviral therapy and social capital access to antiretroviral therapy in Thailand uses a quantitative methodology. The research design is non-experimental, which is the most popular type of research in the social sciences, including public administration (Bunyaratphan, 2012). A cross-sectional design is used to collect the data by conducting a single study only one time NaRanong (2011). A questionnaire was used to collect data from the 27th of November 2019 to March 11, 2020, totaling 4 months.

The content of the research methodology in this chapter consists of the following:

3.1 Research Conceptual Framework

3.2 Operational Definitions

3.3 Research Hypotheses

3.4 Population and Sample

3.5 Research Instrument

3.6 Data Analysis

3.7 Research Limitations

## 3.1 Research Conceptual Framework

According to the literature review, the factors influencing access to antiretroviral therapy can be summarized as a research framework as follows:

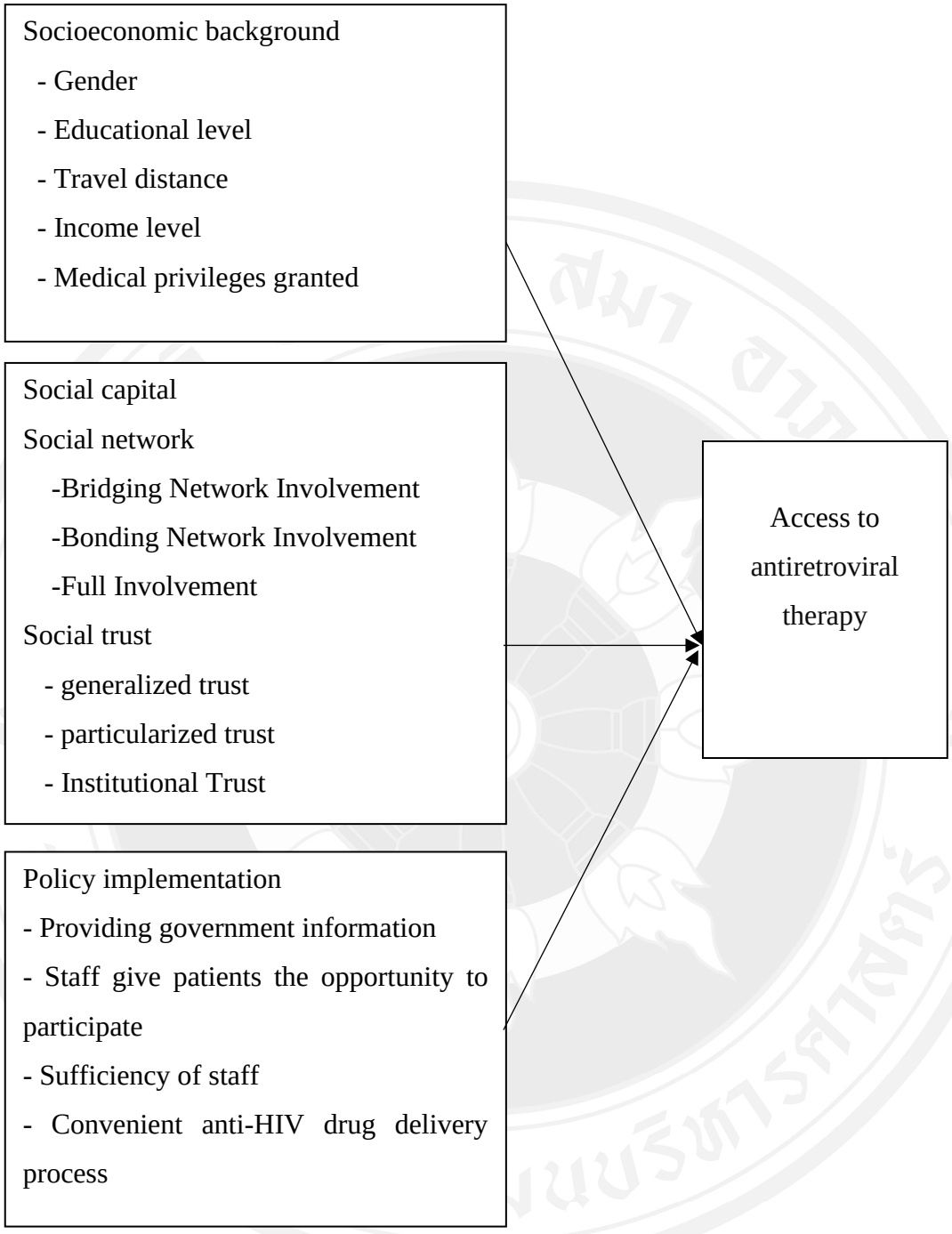


Figure 3.1 Conceptual of Framework

## 3.2 Operation Definitions

In public administration research, one key aspect is the operation definitions (Bunyaratphan, 2012). The operational definitions therefore determine how variables are measured or collected in each research (Bunyaratphan, 2012). For this research, the following criteria were selected.

The researcher's social capital measurement was applied from the definitions of Putnam (1993), Asian Barometer Survey (2014), the World Values Survey (2012), the World Bank (2002a, 2004a), Nishide (2009), Cook (2005) Lin, (2008), and OECD (2020).

1) Social capital consists of two important components: social trust and the social network.

2) Social trust concerns a sense of trust, which can be of three types: (1) generalized trust means a feeling of trust/ confidence—in the general public such as first-timers, people of other religions, people of other nationalities; (2) trust/trust in close acquaintances/ particularized trust means a feeling of belonging—trust/confidence in intimate/specific acquaintances, which are family members, close friends, acquaintances; (3) institutional trust is trust/confidence in institutions /public health personnel, meaning feelings of trust/confidence in the services provided by the health care agency/personnel related to HIV antiretroviral therapy services.

3) Social networks can be divided into bonding networks, which are members that regularly participate in activities in groups/networks/clubs/associations within the community where they live, such as kinship groups, groups, friends, religious groups, village committees, community enterprise groups, etc. Bridging means being a member that regularly participates in activities in groups/networks/clubs/associations outside the community, such as those in the HIV-infected network: the National Health Insurance Coordination Center network Volunteers or various sample groups, etc.

Benefit Incidence Analysis (BIA) is applied by Thailand Development Research Institute (2014). Benefit Incidence Analysis (BIA) is a measure of the size of the benefits that different groups of people with different incomes receive from a government policy or budget. In this research, it is the policy to promote

access to antiretroviral drugs in fiscal year 2018 and the right to healthcare in the Fund for HIV, AIDS, and TB patients, which are according to the National Health Security Office, and access to applied HIV antiretroviral drugs is defined by the World Health Organization (WHO, 2015, 2016), and the National Health Security Office (2019). Access to ART is defined as the percentage of a patient's total number of ART visits according to the doctor's appointment.

Income class is defined as the average income earned by people living with HIV or the median family (household) income per year, which is categorized into five quintile groups: lowest income, middle income, high income, and highest income.

Poor means people whose average annual income is below the poverty line according to the National Statistical Office's guidelines. The poverty line is at 32,520 baht/person/year (2018), and in 2019 the poverty line was at 33,156 baht/person/year, being in the lowest income and low-income groups according to the 2018-2019 income classification of the National Statistical Office. Middle-class people mean people with an average annual income in the middle-income group according to the 2018-2019 income grouping of the National Statistical Office. Wealthy refers to people whose average annual income is in the high-income group and the highest income according to the 2018-2019 National Statistical Office's income grouping. Travel distance refers to the number of kilometers traveled from one’s residence to the hospital for HIV antiretroviral therapy.

The right to medical treatment means healthcare rights received from the free antiretroviral treatment policy according to the rights contained in the National Health Insurance in Thailand. The government only provides for the right to treatment for Thai citizens that have a 13-digit ID card number, including the right to universal health insurance or 30 baht to treat all diseases or national health security rights, social security rights, and the rights of civil servants/state enterprises in Thailand in urban and rural areas. Recognizing information from the government means knowing things through a variety of channels that concern the right to free antiretroviral therapy. Involvement with government officials means participating in various activities concerning HIV/AIDS work with

government officials at meetings of the community co-operation co-planning and jointly formulating policies.

Staff adequacy refers to the level of opinion of the adequacy of healthcare workers to provide HIV antiretroviral therapy that can provide services suitable for the number of HIV-infected patients receiving services, including the number of health workers involved in HIV antiretroviral therapy. Convenience services refer to the level of opinion of the performance of health workers' services for people living with HIV from the registration in the hospital's treatment system, a preliminary examination of a nurse or health worker before seeing a doctor, or the time spending in line to see a doctor, for examination, diagnosis, or an HIV antiretroviral treatment service and counseling or answering questions about taking antiretroviral drugs.

## 3.3 Research Hypotheses

1) Socio-economic background (control variables) (sex, age, distance traveled from place of residence to hospital, and income) is not statistically related to access to antiretroviral therapy.

2) Different healthcare rights have a statistically different effect on access to antiretroviral therapy.

3) HIV-infected people with a bridging of social capital have a statistically significant positive correlation with access to antiretroviral therapy.

4) HIV-infected people with full involvement of social capital have a statistically significant positive correlation with access to antiretroviral therapy.

5) HIV-infected people with trust/confidence in the general public (generalized trust) have a statistically significant positive correlation with access to antiretroviral therapy.

6) HIV-infected people with the particularized trust in social capital have a statistically significant positive correlation with access to antiretroviral therapy.

7) HIV-infected people with institutional trust in social capital have a statistically positive correlation with access to antiretroviral therapy.

8) Government information about the right to antiretroviral therapy has a statistically positive correlation with access to antiretroviral therapy.

9) Engagement with government officials regarding HIV/AIDS work has a statistically positive correlation with access to antiretroviral therapy.

10) Staff adequacy in terms of antiretroviral therapy has a statistically positive correlation with access to antiretroviral therapy.

11) Having a convenient service process has been statistically positively associated with access to antiretroviral therapy.

## 3.4 Population and Sample

### 3.4.1 Population

The population used in this study consisted of 331,397 HIV-infected people registered and taking first-line ARVs from the Office of the Insurance Commission's HIV Information Service, National Health Organization (NHSO) on February 20, 2018.

The sample group was obtained by taking the population numbers registered and taking the above antiretroviral drugs to calculate according to Taro Yamane's formula (Yamane, 1973) for a total number of 665 samples/persons.

$$n = \frac{N}{1+Ne^2}$$

n = sample size (665 people)

N = population (331,397 people)

e = tolerance (In this study, the tolerance level tolerance was set at 0.04.)

### 3.4.2 Sampling Techniques

The sampling method is based on probability sampling, which is the most widely used method. This is because it is a random sampling that considers the probability of the research population. using a multistage cluster sampling method. This method is used in cases where the population is large (Anchana Naranong, 2011). Therefore, it is necessary to perform multiple sampling dividing the population into groups by area, starting from large groups and then gradually dividing them into smaller groups (A. Naranong, 2011) . It is highly suitable for the population sampling in this study, which has a total of 331,397 people spread in different regions of Thailand

The Sampling Process is as Follows.

Stratified sampling. This process is to organize different units of the same population into one group (Silpcharu, 2012) by dividing the population into the same region into the same group consisting of the northern region, the lower north region, central region, western region, eastern region, central northeast region, upper northeast region, lower northeast region, the southern region, and bangkok.

1) Cluster sampling was used by dividing the population into each medical service area of the National Health Security Office, divided into 13 groups, consisting of Region 1; Chiang Mai (upper northern), Region 2; Phitsanulok, Region 3; Nakhon Sawan (Region Lower North), Region 4; Saraburi (Central), Region 5; Ratchaburi (West), Region 6; Rayong (Eastern Region), Region 7; Khon Kaen (Central Northeast region), Region 8; Udon Thani (Upper Northeast), Region 9; Nakhon Ratchasima, Region 10; Ubon Ratchathani (Lower Northeast), Region 11; Surat Thani, Region 12; Songkhla (Southern Region), and Region 13; Bangkok.

2) Select provinces under the supervision of medical services in all 13 regions Selection criteria were based on provinces with the highest number of registered HIV/AIDS patients and taking antiretroviral drugs in that region using the National Health Security Office database for 2018, each medical service area per province, for a total of 13 provinces, including Bangkok, consisting of Chiang Mai, Phetchabun, Nakhon Sawan, Pathum Thani, Ratchaburi, Khon Kaen, Udon Thani, Nakhon Ratchasima, Nakhon Si Thammarat, Songkhla, except where the selected

area did not allow the collecton of the data or the leader of the public health/HIV-infected person was unable to collect the data then another area was chosen instead.

3) Simple random sampling is a random sampling method in which the population has the same chance of being selected (Wanichbancha, 2012). When receiving the 13 provinces selected according to the criteria above, the researcher took the NHSO information, which lists the names of different districts and antiretroviral therapy recipients, which were selected randomly by 1 district, except for Chiang Mai and Chon Buri due to the small number of antiretroviral therapy recipients there. San Pa Tong district in Chiang Mai province and Ban Bueng district in Chonburi Province have selected areas resulting in a data collection totalling 15 hospitals.

Regarding the randomization method, the researcher randomly selected from the list of districts by using a computer program in which all districts were chosen equally; namely, Chiang Dao district, Chiang Mai Province, Chon Daen District, Phetchabun Province, Mueang District, Nakhon Sawan Province, Mueang Pathum Thani District, Photharam District, Ratchaburi Province, Si Racha District, Chon Buri Province, Phon District, Khon Kaen Province, Mueang District, Udon Thani Province, Dan Khun Thot District Nakhon Ratchasima Province, Amphoe Khueang Nai Ubon Ratchathani Province, Mueang District, Nakhon Si Thammarat Province, Ranot District, Songkhla Province, and Khannayao Bangkok.

4) Regarding the randomized selection of hospitals with antiretroviral therapy in each district, each hospital used a simple random sampling method, a computer program for randomization from a list of hospitals in the selected district. They were randomly selected from the NHSO database containing the number of people eligible for free treatment from all three main of National Health Security Funds, including Universal Health Care Coverage, Social Security Fund, and Government Official Fund/State Enterprise Fund. All hospitals at each level and type, whether government, private or other hospitals, were chosen randomly, but the result of the random selection found that all hospitals were government hospitals.

Sampling with the above method is a confounding factor, resulting in volunteer numbers covering all income levels. Since all three funds were eligible for free antiretroviral therapy, people may also have access to the same antiretroviral therapy but may differ in temrs of certain therapy. In this study, only access to

antiretroviral therapy was focused on. The researcher did not study the differences in the drugs given in each treatment right. The hospitals that were chosen at random were as follows: Chiang Dao Hospital, Chiang Dao District; San Pa Tong Hospital, Chiang Mai Province; Chon Daen Hospital, Chon Daen District, Phetchabun Province; Sawan Pracha Rak Hospital, Mueang District, Nakhon Sawan Province; Pathum Thani Hospital, Mueang District, Pathum Thani Province; Photharam Hospital, Photharam District, Ratchaburi Province; Laem Chabang Hospital, Laem Chabang District; Ban Bueng Hospital, Chonburi Province; Phon Hospital, Phon District, Khon Kaen Province; Udon Thani Hospital, Mueang District, Udon Thani Province; Dan Khun Thot Hospital, Dan Khun Thot District, Nakhon Ratchasima Province; Khueang Nai Hospital, Khueang Nai District, Ubon Ratchathani Province; Maharat Nakhon Si Thammarat Hospital, Mueang Nakhon Si Thammarat Province; Ranot Hospital, Ranot District, Songkhla Province; and Nopparat Rajathanee Hospital, Khan Na Yao District, Bangkok.

5) The subjects were randomly assigned to receive antiretroviral therapy at the selected hospital. Convenience sampling was used. The selected persons were either public health workers or the HIV-positive person assisting the hospital in the service of other HIV-infected people. Those people also played an important role as research assistants. All were asked to participate in the study voluntarily, and everyone was chosen equally. If other random methods were used, it may have increased the workload of services or patient care.

The Sampling Details are Shown in the Sampling Table as Follows:

Table 3.1 Size of Population and Sample Groups

| Region | Population | Province | Number of District | Name of Hospital | Sample |
|---|---|---|---|---|---|
| Region 1, Chiang Mai | 40,144 | - Nan 1,761<br>- Phayao 4,425<br>- Lampang 3,997<br>- Lamphun 2,362<br>- Chiang Rai 11,981<br>- Chiang Mai 12,701<br>- Phrae 2,236<br>- Mae Hong Son 726 | 1 | Chiang Dao Hospital / San Pa Tong Hospital, Chiang Mai Province | 81 |
| Region 2 Phitsanulok | 13,892 | - Tak 1,535<br>- Phitsanulok 4,826<br>- Sukhothai 2,071<br>- Uttaradit 2,087<br>- Phetchabun 3,373 | 1 | Chon Daen Hospital, Phetchabun Province | 28 |
| Region 3 Nakhon Sawan | 10,614 | - Kamphaeng Phet 2,134<br>- Chai Nat 1,183<br>- Nakhon Sawan 4,218<br>- Phichit 1,992<br>- Uthai Thani 1,087 | 1 | Sawanprach arak Hospital, Nakhon Sawan Province | 21 |
| Region 4 Saraburi | 29,884 | - Nakhon Nayok 1,226<br>- Nonthaburi 10,625<br>- Pathum Thani 4,732<br>-Ayutthaya 3,686<br>- Lopburi 3,350<br>- Saraburi 3,942<br>- Sing Buri 1,119<br>- Ang Thong 1,204 | 1 | Pathum Thani Hospital, Pathum Thani Province | 60 |

| Region | Population | Province | Number of District | Name of Hospital | Sample |
|---|---|---|---|---|---|
| Region 5 Ratchaburi | 28,383 | - Kanchanaburi 3,738<br>- Nakhon Pathom 3,942<br>- Prachuap Khiri Khan 3,279<br>- Ratchaburi 4,236<br>- Samut Songkhram 908<br>- Samut Sakhon 4,986<br>- Suphanburi 4,297<br>- Phetchaburi 2,997 | 1 | Photharam Hospital, Ratchaburi Province | 57 |
| Region 6 Rayong | 47,434 | - Chanthaburi 4,162<br>- Chachoengsao 3,069<br>- Chon Buri 17,418<br>- Trat 1,929<br>- Prachinburi 2,317<br>- Rayong 6,780<br>- Samut Prakan 9,400<br>- Sa Kaeo 2,359 | 2 | Laem Chabang Hospital, and Ban Bueng Hospital, Chonburi Province | 96 |
| Region 7 Khon Kaen | 20,295 | - Kalasin 3,451<br>- Khon Kaen 9,182<br>- Maha Sarakham 3,236<br>- Roi Et 4,426 | 1 | Phon Hospital, Khon Kaen Province | 41 |
| Region 8 Udon Thani | 20,624 | - Nakhon Phanom 1,984<br>- Bueng Kan 1,398<br>- Sakon Nakhon 4,008<br>- Nong Khai 2,042<br>- Nong Bua Lam Phu 1,801<br>- Udon Thani 7,269<br>- Loei 2,122 | 1 | Udon Thani Hospital, Udon Thani Province | 41 |

| Region | Population | Province | Number of District | Name of Hospital | Sample |
|---|---|---|---|---|---|
| Region 9 Nakhon Ratchasima | 22,588 | - Chaiyaphum 3,896<br>- Nakhon Ratchasima 9,582<br>- Buriram 4,736<br>- Surin 4,374 | 1 | Dan Khun Thot Hospital, Nakhon Ratchasima Province | 45 |
| Region 10 Ubon Ratchathani | 14,048 | - Mukdahan 1,028<br>- Yasothon 1,676<br>- Sisaket 4,151<br>- Amnat Charoen 1,002<br>- Ubon Ratchathani 6,191 | 1 | Khueang Nai Hospital, Ubon Ratchathani | 28 |
| Region 11 Surat Thani | 21,371 | - Krabi 1,809<br>- Chumphon 2,151<br>- Nakhon Si Thammarat 6,291<br>- Phang Nga 1,121<br>- Phuket 3,288 | 1 | Maharat Nakhon Si Thammarat Hospital, Nakhon Si Thammarat Province | 43 |
| Region 11 Surat Thani | 21,371 | - Ranong 862<br>- Surat Thani 5,849 | 1 | Maharat Nakhon Si Thammarat Hospital, Nakhon Si Thammarat Province | 43 |
| Region 12 Songkhla | 16,568 | - Trang 2,788<br>- Narathiwat 1,622<br>- Pattani 984<br>- Phatthalung 2,007<br>- Yala 1,031<br>- Songkhla 6,999<br>- Satun 1,137 | 1 | Ranot Hospital, Songkhla Province | 33 |
| Region 13 Bangkok | 45,552 | Bangkok 45,552 | 1 | Noppharat Rajathanee Hospital | 91 |
| Total | 331,397 | 331,397 | 15 | - | 665 |

Source: National Health Security Office (2018a).

A total of 665 samples were collected for this study, where 100% of the responses were received due to the help of the data collection operator. These are the personnel working in the hospital that was the sampling area. Therefore, they are familiar with the sample group, helping the sample group to cooperate very well.

Human Research Ethics Review (Institutional Review Board: IRB)

In this research, the ethical principles of human research were considered to be very important thing. Therefore, the research protocol has been submitted and all

related documents to the Human Research Ethics Committee to investigate whether the tools created have caused psychological harm regarding social status, financial status, or legal hazards. The Ethics Committee for Research in Human beings considers ethics as an important consideration in the protection of rights, dignity, and safety, including matters of concern of the well-being of the volunteers or the sample that participated in the research (National Research Council of Thailand, 2016). This research report has been approved and authorized to collect data from various organizations as follows: the Human Research Ethics Committee Graduate Institute of Management, the Human Research Review Committee Ministry of Public Health, and the research committee in the area of research throughout the country, including Chiang Mai Provincial Public Health (Chiang Dao Hospital) San Pa Tong Hospital Chiang Mai Province; Sawan Pracharak Hospital Nakhon Sawan Province; Pathum Thani Hospital; Photharam Hospital, Ratchaburi Province; Chonburi Provincial Public Health (Laem Chabang Hospital Ban Bueng Hospital Chonburi Province); Khon Kaen Provincial Public Health Phon Hospital, Khon Kaen Province; Udon Thani Hospital; Nakhon Ratchasima Provincial Public Health (Dan Khun Thot Hospital); Khueang Nai Hospital Ubon Ratchathani Province; Maharat Nakhon Si Thammarat Hospital Nakhon Si Thammarat Province; Songkhla Provincial Public Health Office Ranot Hospital; and Nopparat Ratchathani Hospital Bangkok.

## 3.5 Research Instrument

This research is quantitative using questionnaires that developed tools from both domestic and international literature. The social capital questionnaire was developed from the Word Bank questionnaire “Measuring Social Capital An Integrated Questionnaire” (World Bank, 2004a) and a book called “Understanding and Measuring Social Capital A Multidisciplinary Tool for Practitioner (World Bank, 2002a), including adaptations from world values survey (World Values Survey, 2012) and the Asian Barometer Survey (Asian Barometer Survey, 2014), which is an international standard questionnaire. Questions about social capital were selected, including statements about social trust/confidence: “It can generally be said that most people can be trusted or must be extremely cautious,” but the statement has been

revised to the question “How much do you trust most people in general?” For questions about trust in organizations or institutions, the question was asked: “Do you trust the following institutions?” This question was revised to "How much do you trust in the following agencies?" As for questions about social networks, there were selected questions asking the following: “Can you tell me that are you an active member, inactive member, or not a member of any of the following organizations?” “Are you a member who regularly participates in activities in groups/networks/clubs/associations within the community you live in, such as relatives’ groups, friends, religious groups, village committee community enterprise groups, etc.,” with the choice of answering in either a closed-ended or open-ended fashion. For the closed-ended answers, the participants were asked to answer as a member (if they answered yes to the next item) using an open-ended question, specifying the groups/networks/clubs/associations within the community where they live and participate in activities. The answer has to be written regarding no more than five groups/networks. If the person was not a member (skip to another question), the following was employed: “You are a member that regularly participates in activities in groups/networks/clubs/associations outside of the community you live in, such as the HIV Infectious Network, National Health Insurance Coordination Center Network, as a volunteer, or various samples” with the choice of answering both in closed-ended and open-ended fashions. For the closed-ended answers, the participants were asked to answer "membership" (if they answered yes to the next question) as an open-ended question, and then specified groups/networks/clubs/associations outside the community where they were participating in the event that it was no more than five groups/networks with the choice to answer that the participants were not a member.

The other questions were based on a review of the relevant literature. This research tool (questionnaire) is a questionnaire in which the sample is self-responding (self-administrative questionnaire), which was divided into three parts, consisting of:

Section 1 General information about the respondents

Section 2 Information and opinions on HIV antiretroviral access and social grants

Section 3 Information and opinions about the implementation of HIV antiretroviral access policy

For the measurement of the variables in the questionnaire in this research the researcher measured the variables and determined the variable values and interpretation criteria as follows:

In measuring the respondents' general data variables, there were questions to measure each variable as follows.

Item 1. Gender used closed-ended questions, and only one answer could be chosen, male or female.

Item 2. Age used fill in the actual age number.

Item 3. Number of years of education was according to years.

Item 4. For the area in which the respondent currently lived, he/she had to answer District/Khet..... province……..

Item 5. For the areas where the person had the right to receive medical treatment, the respondent had to answer District/Khet.....Province.....

Item 6. The average income of the volunteers or sample groups per year (enter a number) (to analyze whether different income classes have access to antiretroviral drugs different or not and which income tier is the most accessible and minimal)

Item 7. Average family income (household) per year (enter numbers) (the same reason as for item 6)

Item 8. For the distance from residence to hospital for HIV antiretroviral therapy, the respondent had to use kilometers.

Item 9. The right to receive medical treatment was divided into Universal Health Coverage scheme (gold card/30 Baht)/social security, civil servants/state enterprises/does not ask for any rights.

Variables 1-5 and 8-9 measured the factors influencing access to antiretroviral drugs.

Variables 6-7 were the measure of the benefit incidence analysis by income strata for access to HIV antiretroviral drugs (a measure of the independent variables). Regarding the measurement of the data variables and opinions on HIV antiretroviral access and social grants, there were questions to measure each variable as follows.

Item 10. In the past year, have you received all the antiretroviral drugs prescribed by the doctor? Write a reply with the full amount of medicine……..times of all the doctor's appointments..... time.

Item 11. This year, have you received all the antiretroviral drugs as prescribed by the doctor? Write a reply about the full amount of medicine……..times of all the doctor's appointments..... time.

The variable items 10-11 were measures of the dependent variable about access to HIV antiretroviral drugs by analysis from statistics: number, percentage, and multiple regression analysis, which were used to test/analyze other variables from verses 1-21.

For items 12-15, they were measures of the independent variable of social capital factors in social networking.

Item 12 Are you a member that regularly participates in activities in groups/networks/clubs/associations within the community you live in? Examples were given to volunteers or sample groups to read, such as relatives, friends, religious activity groups, village committees, and community enterprise groups. The answers were set to choose both closed-ended and open-ended versions. For the closed-ended answers, the answer is that Being a member (if the answer is yes, answer question 13 as well) Item 13 is an open-ended question that identifies groups/networks/clubs/associations within the community participating in the activity. The answer had to include no more than five groups/networks.

Item 14 asked if the person was a member that regularly participates in activities in groups/networks/clubs/associations outside the community where he/she lives. Examples were given to volunteers or sample groups to read, such as the HIV Infected Network, the Public Health Insurance Coordinating Center Network, and volunteers, or sample groups. Both closed-ended and open-ended answers were assigned for the closed-ended answers. choose to answer

Being a member (if the answer was yes, answer question 15 as well)

Item 15 is an open-ended question. Specify no more than five groups/networks/ clubs/associations outside the community that participate in the activity.

Item 12-15 are measures of the social capital factor variables in terms of social networking. Questions 1-15 and 17-20 are objective measures of what was happening (Prasitthasin, 2015). Questions 16, and 20-21 are subjective measurements, which measure beliefs, attitudes, and trends (Prasitthasin, 2015)

Item 16 is a measure of the independent variables. The opinions or feelings of the subjects or subjects with feelings of trust/confidence in individuals, close contacts, and public health authorities measured how they affect access to HIV antiretroviral drugs. The answers available to measure such variables were: trust/confidence in individuals (most people, in general, can trust the person that they meet for the first time, people of other religions, people of other nationalities, family members and close friends, acquaintances, and trust/confidence in an agency (provincial hospital, government hospital in Bangkok, provincial public health, sub-district health promotion hospital, networks/societies working with HIV, and others).

In order to measure the variables of social confidence that influenced access to antiretroviral drugs, a rating scale was categorized into five levels of trust/feeling of confidence. The response score was set according to the following options:

| | |
|---|---|
| Trust or feel most confident | 5 points |
| Trust or feel very confident | 4 points |
| Trust or feel moderately confident | 3 points |
| Trust or feel less confident | 2 points |
| Trust or feel least confident | 1 point |

Interpreting the values of the variables for averaging the analysis, the mean range was divided as follows:

4.21-5.00 points means trust or feel most confident.

3.41-4.20 points mean trust or feel very confident.

2.61-3.40 points means trust or feel moderately confident.

1.81-2.60 points means trust or feel less confident.

1.00-1.80 points means trust or feel the least confidence.

Measuring Data Variables and Opinions on Implementing HIV Antiretroviral Access Policy

For the measurement of the variables in items 17-21, they were independent variable measurements. Factors in the implementation of antiretroviral access policies influencing access to antiretroviral drugs.

Item 17. Ask if in the past three years you have received information about your right to free antiretroviral therapy. Total number…..times (write down the numbers that the volunteers or the sample received information, etc.).

Item 18. In the past three years have you been involved in various operations about HIV/AIDS work with government officials? The answer was to be chosen.

Item 18. In the past three years have you been involved in various operations about HIV/AIDS work with government officials? The answer was to be chosen.

Item 19. The hospital where the subjects or the sample received antiretroviral drugs has public health personnel (doctors, nurses, pharmacists, other service personnel).related to antiretroviral therapy) total..... People have volunteers or sample groups fill in the numbers that they have seen the staff that they have been to medical services.

Item 20. This is a question about the opinions of the subjects or the sample as to the adequacy of the health officials concerning antiretroviral therapy. Answers expressing the participants' opinions concerned the doctors/doctors that examined/diagnosed symptoms and treated them, nurses that did blood tests/scheduled appointments for doctors/doctors, pharmacists/staff that prescribed antiretroviral drugs, and other health officials and advice on taking antidepressants/counseling.

In order to measure the staff adequacy rating variables for each category as a measure of whether staff adequacy influences access to HIV antiretroviral drugs, a rating scale was used to measure the level of opinion about staff adequacy. Staff adequacy was categorized according to five levels, with optional score assignments as follows:

| | | |
|---|---|---|
| Mostly enough | 5 | points |
| Enough | 4 | points |
| Moderately adequate | 3 | points |
| Adequate | 2 | points |
| Least sufficient | 1 | point |

Interpreting the values of the variables for averaging the analysis. The mean range was divided as follows:

| | | |
|---|---|---|
| 4.21-5.00 points | means | the most adequate. |
| 3.41-4.20 points | means | very sufficient. |
| 2.61-3.40 score | means | moderately sufficient. |
| 1.81-2.60 points | means | less adequate. |
| 1.00-1.80 points | means | the least sufficient. |

Item 21 is a questionnaire for the opinions of the volunteers or the sample group about how convenient the process of providing antiretroviral therapy is. There were answers in terms of the registration history of entering the hospital treatment system, the initial examination of the nurse or health worker before seeing the doctor or doctor, waiting in the queue to see the doctor/doctor, the provision of ART services, examination, diagnosis, treatment of a doctor/doctor and counseling or answering questions about taking antiretroviral drugs.

Regarding the measurement of the level of opinion variables regarding the convenience of the antiretroviral treatment service process, it is a measure that provides treatment influence access to antiretroviral drugs. The rating scale, which has five levels of opinion regarding the convenience of antiretroviral therapy services, has been assigned scores according to the following options:

| | | |
|---|---|---|
| The service process is | the most convenient. | 5 points |
| The Service process is | very convenient. | 4 points |
| The Service process is | moderately convenient. | 3 points |
| The Service process is | less convenient. | 2 points |
| The Service process is | least convenient. | 1 point |

Interpreting the values of variables for averaging analysis The mean range is divided as follows:

| | | |
|---|---|---|
| 4.21-5.00 points | means | the most convenient. |
| 3.41-4.20 points | means | very convenient. |
| 2.61-3.40 score | means | convenient. |
| 1.81-2.60 points | means | less convenient. |
| 1.00-1.80 points | means | the least convenient |

Research is about finding the truth, and acquiring the truth requires reliable tools. If the tool is inaccurate and unreliable, the results of the research will not be of high quality (Wanichbancha, 2012). Therefore, in this research, the research tools were tested in terms of accuracy, or the accuracy of the content (validity) and reliability/reliability (reliability) as follows:

**3.5.1 Content Validity**

The questionnaire was investigated by a panel of experts for content valuation to check for the quality of the tools. For this process, there were three experts as follows:

1) Professor Prapan Panupak, MD, Director of the AIDS Research Center of the Thai Red Cross, AIDS Consultant of the World Health Organization (WHO), National Committee on Prevention and Solution to AIDS. He has had more than 30 years of experience in researching antiretroviral therapy at the international and national levels. He is an advocate of Thailand's access to antiretroviral therapy.

2) Apiwat Kwangkaew, President, Network for HIV/AIDS Thailand. He is one of the proponents of the policy of access to antiretroviral therapy so that the government can set policies for antiretroviral therapy and treating HIV or AIDS patients for the Universal Health Care Coverage. He has had more than 20 years of experience driving access to antiretroviral therapy.

3) Associate Professor Dr. Ploy Suebvises, Faculty of Public Administration, National Institute of Development Administration. He is an expert that researches on social capital, public participation in public administration, and government operations in Thailand. His work has been published in the World Development Journal, which is in the database ScienceDirect, Scimago Q 1 Issue 109, September 2018 (Suebvises, 2018).

After the experts had assessed the quality of the content (content validity), the researcher compiled a report to find the index of Item-Objective Congruence (IOC), which was 0.82, which is high accuracy. The table below shows the corresponding index values between each question item and its purpose (Index of Item-Objective Congruence: IOC).

Table 3.2 Index of Consistency Between each Question and Purpose
(Index of Item-Objective Congruence: IOC)

| No. | Experts | | | Total | IOC | Interpretation |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | | | |
| | +1 | 0 | +1 | 2 | 0.66 | Valid |
| | +1 | +1 | +1 | 3 | 1 | Valid |
| | +1 | +1 | 0 | 2 | 0.66 | Valid |
| | +1 | +1 | +1 | 3 | 1 | Valid |
| | +1 | +1 | +1 | 3 | 1 | Valid |
| | +1 | +1 | +1 | 3 | 1 | Valid |
| | +1 | +1 | +1 | 3 | 1 | Valid |
| | +1 | 0 | +1 | 2 | 0.66 | Valid |
| | +1 | +1 | +1 | 3 | 1 | Valid |
| | +1 | 0 | +1 | 2 | 0.66 | Valid |
| | +1 | 0 | +1 | 2 | 0.66 | Valid |
| | +1 | 0 | +1 | 2 | 0.66 | Valid |
| | +1 | 0 | +1 | 2 | 0.66 | Valid |
| | +1 | 0 | +1 | 2 | 0.66 | Valid |
| | +1 | +1 | +1 | 3 | 1 | Valid |
| | +1 | 0 | +1 | 2 | 0.66 | Valid |
| | +1 | 0 | +1 | 2 | 0.66 | Valid |
| | +1 | +1 | +1 | 3 | 1 | Valid |
| | +1 | +1 | +1 | 3 | 1 | Valid |
| | +1 | +1 | +1 | 3 | 1 | Valid |
| | +1 | 0 | +1 | 2 | 0.66 | Valid |
| | | Total | | | 0.82 | Valid |

### 3.5.2 Reliability Testing

Reliability testing is the assessment of the consistency of answers (Bunyaratphan, 2012). It is a test of the unity (homogeneity) of the question set, which tests the internal relations between items in the question that are created with internal consistency. This test was tested using Cronbach's alpha coefficient

(Prasitthasin, 2015). The subjective questions measured confidence/trust and attitudes. The alpha value was not less than 0.70 for the measurement of social capital. One of the most important variables is social trust, which includes generalizing trust and specific trust (particularized trust). The reliability was found to have a Cronbach's alpha at .850 and confidence/trust of the institution (institutional trust) (Reliability) had a Cronbach's alpha at .795.

Regarding the questions about the adequacy of personnel providing antiretroviral therapy, the reliability showed a Cronbach alpha at .905. Comments on the convenience of obtaining antiretroviral therapy had reliability with a Cronbach alpha at .911; therefore, from the reliability test, the reliability of the instruments indicated that the measurements in this research were reliable.

Testing the relationship between independent variables (multicollinearity)

In order to determine the coefficients between the independent variables and the dependent variables, the independent variables must not be overly correlated. If the independent variables are highly correlated, the correlation coefficient between the independent variable and the dependent variable cannot be determined or the correlation coefficient is erroneous. In order prevent a relationship between the independent variables or predictors (Prasitthasin, 2015), if the test results of the relationship among the independent variables (Multicollinearity) exceeds 0.80, it is considered that the relationship among the independent variables is a problem. Therefore, in this study, correlation was tested using a matrix of correlation coefficients. It was found that none of the independent variables correlated greater than 0.80. Therefore, the relationship among the independent variables did not indicate a multicollinearity problem.

## 3.6 Data Analysis

The quantitative data analysis employed IBM Version 26 SPSS package for processing. Quantitative data were analyzed using both descriptive and inferential statistics as follows:

### 3.6.1 Descriptive Statistics

Descriptive statistics are used to describe the distribution of the data sets without any estimates or predictions (Powintara, 2015). or it is a statistic used to summarize the characteristics of a data group (Wanichbancha, 2012). Descriptive statistics are considered as the most basic statistic that the researcher can use to summarize the characteristics of the studied population. It is a statistic necessary to report quantitative research results, regardless of whether the research uses minimum or advanced research techniques (Prasitthasin, 2015), such as amount, percentage, etc. It is used to describe normal distribution data to describe the basic population and sample data; numbers such as the number of people living with HIV, the number of people receiving antiretroviral therapy, including analyzing budgetary expenditures regarding access to antiretroviral therapy.

For the statistical analysis, objective two was to study access to antiretroviral drugs among populations with different income levels. The statistics for the analysis were: 1) the number and percentage, as well to analyze the group by income class. It was divided according to economic principles known as quintile by income class, which is: (1) the poorest income class group of 20 percent; (2) the poor income class group of 20 percent; (3) 20% in the middle-income class; (4) 20% in the rich income class; and 5) 20% in the richest income class group. They were analyzed according to the right to medical care.

### 3.6.2 Inferential Statistics

Inferential statistics are used to describe phenomena based on deductive reasoning to test the research hypotheses that have been determined from literature reviews and the framework (Powintara, 2015). In this study, multiple regression analysis was used to analyze the relationship of multiple variables consisting of two or more independent variables, and all independent variables were quantitative or some were qualitative and one was a dependent variable. It was a quantitative variable (Wanichbancha, 2012). The use of multiple regression analysis in this research was to analyze the factors influencing access to antiretroviral therapy, with further details.

Determine the statistical significance that $p<0.04$

Statistics were used to analyze the factors of socioeconomic background, including gender, the number of years of highest education, distance traveled in kilometers, income level, and regression analysis was used, while the variables for the right to receive medical treatment used ANOVA for analysis. The social capital variables consisted of social trust measured according to five levels of confidence/trust, using mean in the analysis. The social network was set as a dummy variable (0 was participating and 1 was not participating) and then analyzed for the regression analysis. Statistics were used to analyze the factors of socioeconomic background, including gender and the number of years of the highest education. Distance traveled in kilometers, income level, and regression analysis were used, while for the variables for the right to receive medical treatment, ANOVA was used for the analysis. The social capital variables consisted of social confidence, measured according to five levels of confidence/trust, using mean in the analysis. social network section Make a dummy variable (0 was participating and 1 was not participating) and then it was used for the regression analysis. The policy-implementation variables consisted of government information measured according to the number of exposures to free antiretroviral treatment using statistical regression analysis. The patients' participation was measured by the number of times they participated in various fields. Regression analysis was used, while staff adequacy was measured on a 5-point scale. Mean was used for the anti-HH service process. For the convenience of the anti-HIV drug delivery process, five opinion-level means were used in the analysis.

The dependent variable was the percentage of access to antiretroviral drugs (number of times receiving complete medication as prescribed by the physician), where regression analysis was used. In the case of analyzing the independent variable (in the case of the multiple quantitative variables) affecting access to antiretroviral drugs (dependent variable), multiple regression analysis was used.

## 3.7 Research Limitations

In this research on antiretroviral access promotion policies and social funding and access to antiretroviral drugs in Thailand there were some limitations, including the following.

1) There was a limitation in the collection of the sample data; only collected from people infected with HIV that were are admitted to the hospital. It was not possible to access samples of those that did not undergo treatment or that did not register for ART because they did not know who the HIV-positive people were or where they lived.

2) There were restrictions on collecting data on sensitive and medically classified disease samples. Disclosing one's identity to others that are not involved in treatment was, therefore, medical information that cannot be communicated to others, because if the patient knows that other people who are not involved are aware of the disease, it may affect criminal prosecution. This made it impossible for the researcher to collect data by himself. Therefore, the researcher coordinated with the HIV/AIDS Network Thailand, which has worked with medical personnel in various hospitals and has coordinated with hospital staff that are close to patients. The patients have respect for and trust in the staff more than researcher so data are collected by the staff for the researchers.

3) There were limitations regarding the literature analysis of social capital and access to antiretroviral drugs. Since not much has been studied, this work may be the first to study the subject.

4) Normal benefit distribution analysis can analyze inequality in terms of the Gini coefficient, but the sample data have to be collected and compared for at least two years. In this research, the same sample data could not be collected for two years in a row, so only part of the benefit distribution was analyzed.

# CHAPTER 4

# RESEARCH RESULTS

Regarding the results of the study in this chapter, this is a quantitative data analysis presenting the results of an objective study of social capital and access to antiretroviral therapy and the benefit incidence of access to antiretroviral therapy among populations with different income levels in the national health insurance system of Thailand. The results of the study are presented as follows:

4.1 General Information about The Sample

4.2 Results of a Study on the Socioeconomic Background Factors and Access to Antiretroviral Therapy in Thailand

4.3 Social Capital and Access to Antiretroviral Therapy in Thailand

4.4 Benefit Incidence of Access to Antiretroviral Therapy

## 4.1 General Information about the Sample

The presentation of the study results is divided into two parts: general information on the sample group and the socioeconomic background factors. Regarding the general information, it is presented according to descriptive statistics, presenting the results of the research hypothesis testing, and the analysis of the inferential statistics. The socioeconomic background factors include sex, age, number of years, education, income, and the right to medical care. This were defined as a control variable to test whether it was correlated with access to antiretroviral therapy. The details are as follows.

A total of 665 samples were collected in this study; 100 percent of the responses were received due to the help of the data collection operator. As personnel working in the hospital, which was the sampling area, therefore, they are familiar with

the sample group, allowing the sample group to cooperate very well. From the analysis of the data, the results of the research can be summarized as follows.

Table 4.1 Number and Percentage of Samples by Gender.

| Gender | Amount | Percentage |
|---|---|---|
| Male | 323 | 48.6 |
| Female | 332 | 49.9 |
| No answer | 10 | 1.5 |
| Total | 655 | 100 |

Table 4.1 shows the gender of the sample. The table shows that most of the sample groups are 332 female (49.9%). The proportion of males in the questionnaire compared with females is only 1.3%.

Table 4.2 Number and Percentage of Samples by Number of Years Studying.

| Number of years studying | Number | Percentage |
|---|---|---|
| Uneducated | 16 | 2.4 |
| 4 years | 48 | 7.2 |
| 6 years | 216 | 32.5 |
| 7 years | 2 | 0.3 |
| 8 years | 2 | 0.3 |
| 9 years | 138 | 20.8 |
| 10 years | 1 | 0.2 |
| 11 years | 1 | 0.2 |
| 12 years | 140 | 21.1 |
| 14 years | 10 | 1.5 |
| 16 years | 71 | 10.7 |
| 18 years | 5 | 0.8 |
| 22 years | 1 | 0.2 |

Table 4.2 Number and Percentage of Samples by Number of Years Studying.

| Number of years studying | Number | Percentage |
|---|---|---|
| No answer | 14 | 2.1 |
| Total | 665 | 100.0 |

Note**:** Mean= 8.9 years S.D.= 3.925 Minimum = 0 Maximum = 22

Table 4.2 shows the number of years that the participants had studied, with 216 people (32.5%) in the education system for 6 years, followed by 12 years 140 (21.1%), and when calculating the number of years of studying, it is found that the number of years was at 8.9.

Table 4.3 Number and Percentage of Samples by Residence.

| Residence | Number | Percentage |
|---|---|---|
| City | 117 | 17.6 |
| outside the city | 546 | 82.1 |
| No answer | 2 | 0.3 |
| Total | 665 | 100 |

Table 4.3 shows the sample housing. According to the table, most of the respondents live outside the city, at 546 (82.1%), followed by those outside the city.

Table 4.4 Number and Percentage of Samples by Area Eligible for Medical Treatment according to the National Health Security Office (NHSO).

| NHSO Zone | Province | Number | Percentage |
|---|---|---|---|
| 1 | Chiang Mai | 81 | 12.2 |
| 2 | Phetchabun | 28 | 4.2 |
| 3 | Nakhon Sawan | 21 | 3.2 |
| 4 | Pathum Thani | 60 | 9.0 |
| 5 | Ratchaburi | 57 | 8.6 |
| 6 | Chon Buri | 96 | 14.4 |
| 7 | Khon Kaen | 41 | 6.2 |
| 8 | Udon Thani | 41 | 6.2 |
| 9 | Nakhon Ratchasima | 45 | 6.8 |
| 10 | Ubon Ratchathani | 28 | 4.2 |
| 11 | Nakhon Si Thammarat | 43 | 6.5 |
| 12 | Songkhla | 33 | 5.0 |
| 13 | Bangkok | 91 | 13.5 |
| Total | - | 665 | 100 |

Table 4.4 shows areas that are eligible for medical treatment by area of the National Health Security Office (NHSO). According to the table, it was found that most of the sample groups had the right to antiretroviral therapy in the area of six provinces: Chon Buri at 96 people (14.4%), followed by zone 13, Bangkok, at 91 persons (13.5%).

Table 4.5 Number and Percentage of Samples by Age.

| Age range | Number | Percentage |
|---|---|---|
| 18-24 years old | 29 | 4.5 |
| 25-49 years old | 432 | 65.0 |
| 50 and above | 184 | 27.7 |
| No answer | 20 | 2.8 |
| Total | 665 | 100.0 |

Table 4.5 shows the sample ages. The table indicates that the majority of the samples were 432 people aged 25-49 years (65%), followed by ages between 18-24 years, at 29 individuals (4.5%).

Table 4.6 Number and Percentage of Samples by Distance from Accommodations to Hospital for Receiving HIV Drugs.

| Distance (kilometers) | Number | Percentage |
|---|---|---|
| Less than 1 kilometer | 2 | 0.3 |
| 1-10 kilometers | 304 | 45.7 |
| 11-20 kilometers | 149 | 22.4 |
| 21-30 kilometers | 59 | 8.9 |
| 31-40 kilometers | 27 | 4.1 |
| 41-50 kilometers | 25 | 3.8 |
| 51-60 kilometers | 4 | 0.6 |
| 61-70 kilometers | 4 | 0.6 |
| 71-80 kilometers | 4 | 0.6 |
| 81-90 kilometers | 3 | 0.5 |
| 91-100 kilometers | 2 | 0.3 |
| More than 100 kilometers | 11 | 1.7 |
| No answer | 71 | 10.5 |
| Total | 665 | 100.0 |

Table 4.6 shows the distance from the shelter to the hospital for receiving antiretroviral therapy. The table shows that the distance from the shelter to the hospital to receive antiretroviral therapy for most of the samples was a distance of 1-10 kilometers, at 304 people (45.7%), followed by traveling from the accommodations to receive antiretroviral drugs at a distance of 11-20 kilometers, at 149 people (22.4%).

Table 4.7 Percentage of Sample Group Classified by Personal Income Per Year.

| Annual income | Percentage |
|---|---|
| Less than 5,999 baht | 6.7 |
| 6,0000-18,000 baht | 16.4 |
| 18,001-36,000 baht | 14.0 |
| 36,001-60,000 baht | 10.5 |
| 60,001-120,000 baht | 18.0 |
| 120,001-180,000 baht | 7.5 |
| 180,001-360,000 baht | 6.3 |
| 360,001-600,000 baht | 1.7 |
| 600,0001-1,200,000 baht | 0.4 |
| More than 1,200,001 baht | 0.2 |

Table 4.7 shows personal income per year. In the table, it can be seen that most of the samples had an income per year from 60,001-120,000 baht (18%), followed by annual income from 6,0000-18,000 baht (16.4%). However, the data revealed that samples with incomes less than 36,000 baht totaled 37.1%, while samples with incomes from 36,001 baht up to 44.6%

Table 4.8 Percentage of Sample Groups Classified by Household Income Per Year.

| Annual income | Percentage |
|---|---|
| Less than 18,000 baht | 16.4 |
| 18,000-36,000 baht | 17.2 |
| 36,001-60,000 baht | 13.9 |
| 60,001-120,000 baht | 24.5 |
| 120,001-180,000 baht | 9.6 |
| 180,001-360,000 baht | 10.6 |
| 360,001-600,000 baht | 5.3 |
| 600,0001-1,200,000 baht | 1.8 |
| 1,200,001-1,800,000 baht | 0.2 |
| More than 1,800,001 baht | 0.33 |

Table 4.8 shows the annual household income. According to the table, most of the respondents had a household income per year from 60,001 to 120,000 baht (24.5%), followed by an annual income from 18,000 to 36,00 baht (17.2) However, the data revealed that the household incomes of the respondents with incomes not over 36,000 baht totaled 33.6%, while samples with incomes from 36,001 baht up to 66.23%

Table 4.9 Number and Percentage of Samples by Medical Rights.

| Medical rights | Number | Percentage |
|---|---|---|
| Universal Healthcare Coverage (Gold card) or 30-baht for All Diseases | 473 | 71 |
| Social Security Rights | 166 | 25.0 |
| Civil Servant Rights/ State Enterprises | 18 | 2.7 |
| Do Not Request Permission | 3 | 0.5 |
| No Answer | 5 | 0.8 |
| Total | 665 | 100 |

Table 4.9 shows the medical privileges. According to the table it was found that the medical rights of the sample group were either universal health coverage (Gold card) or 30 baht for all diseases, at 473 people (71%), followed by 166 social security rights (25%).

Table 4.10 Number of Times Received Antiretroviral Therapies in 2018.

| Number of times received | Number | Percentage |
|---|---|---|
| 1 | 13 | 2.0 |
| 2 | 26 | 3.9 |
| 3 | 104 | 15.6 |
| 4 | 334 | 50.2 |
| 5 | 26 | 3.9 |
| 6 | 29 | 4.4 |
| 7 | 33 | 5.0 |
| 8 | 4 | 0.6 |
| 9 | 1 | 0.2 |
| 10 | 1 | 0.2 |
| 12 | 11 | 1.7 |
| 36 | 1 | 0.2 |
| No answer | 82 | 12.3 |
| Total | 665 | 100.0 |

Table 4.10 shows the number of individuals receiving antiretroviral therapy in 2018. From the table, it is found that most of the samples, 334 people (50.2%), received 4 times of antiretroviral therapy in 2018, followed by 104 people, (15.6%), received 3 times.

Table 4.11 Number of Medical Appointments by A Doctor Was Made in 2018.

| The number of medical appointments | Number | Percentage |
|---|---|---|
| 1 | 14 | 2.1 |
| 2 | 32 | 4.8 |
| 3 | 109 | 16.4 |
| 4 | 322 | 48.4 |
| 5 | 26 | 3.9 |
| 6 | 33 | 5.0 |
| 7 | 33 | 5.0 |
| 8 | 3 | 0.5 |
| 9 | 1 | 0.2 |
| 10 | 1 | 0.2 |
| 12 | 6 | 0.9 |
| 36 | 1 | 0.2 |
| No answer | 84 | 12.6 |
| Total | 665 | 100.0 |

Table 4.11 shows the number of medical appointments that doctors made in 2018. From the table, it was found that the majority of the sample group was 322 people (48.4%), doctor appointments in 2018 were four times, followed by 109 people (16.4%), where the doctor appointment was three times.

## 4.2 Hypothesis Testing of Socio-Economic Background and Access to Antiretroviral Therapy in Thailand

Regarding the hypothesis testing in this section, literature reviews of socioeconomic background were used as a control variable to test the relationship between social capital and access to HIV treatment. Since the measurement levels of some of the variables were different, different statistics were chosen to test the hypotheses. For the gender variable, it is made into a dummy variable, the value of 0 was set for males, and 1 to females, while the age variable, number of years in school, distance, personal income, and family were ratio variables, so it was possible to conduct a test in order to find the relationship of the variables. This group of

variables, therefore, uses multiple regression analysis. However, the most important thing before performing a multiple regression analysis is to find the coefficient of the correlation, whether there is a real relationship or not with a statistical significance (Silpcharu, 2012). Since it is a nominal variable, the analysis of variance from the hypothesis testing can be summarized as follows.

**Hypothesis 1:** Socio-economic background (control variables) (sex, age, distance traveled from place of residence to hospital, and income) is not statistically related to access to antiretroviral therapy.

Table 4.12 Multiple Regression Analysis of the Relationship between Socioeconomic Backgrounds and Access Antiretroviral Therapy.

| Independent variable Economic and social background | The dependent variable: access to antiretroviral therapy Coefficients (Beta) | T | Significance |
|---|---|---|---|
| | Model 1 | | |
| Gender | .048 | .976 | .330 |
| Age | .169 | 3.364 | .001** |
| Number of Years Studying | .020 | .413 | .680 |
| Income | -.007 | -.137 | .891 |
| The Distance from the Accommodations to the Hospital | .070 | 1.409 | .160 |
| R = .186 $R^2$= 0.35 Adjusted $R^2$= 0.35 F = 0.23 n = 26 Sig. = 0.013 | | | |

Note: * Statistical Significance at the Level of 0.04

** Statistical Significance at the Level of 0.01

Table 4.12 shows the coefficient from the multiple regression analysis of the relationships among the dependent variable (access to antiretroviral therapy) and independent variables; namely, socio-economic background, consisting of gender, age, number of years studying, income, and distance from accommodations to the hospital. In the table, it can be seen that Model 1, F = 0.23 (Prob = 0.13) is greater

than 0.04, indicating that the equation analyzed is not suitable or reliable, and R2 = 0.35 shows that some of the independent variables can explain the variable at 3.5%. For the coefficient of the relationship between the dependent variable (access to antiretroviral therapy) and independent variables, it was found that only one independent variable had a relationship, which was the age variable. When age has a positive relationship with access to antiretroviral drugs, it means that as people age, their access to antiretroviral therapy increases. However, there was no statistically significant relationship among gender, number of years of studying, income, or distance from hospital accommodation to access to antiretroviral therapy. Therefore, it can be concluded that socioeconomic background (gender, number of years studying, the distance from the accommodations to the hospital, income) does not influence access to antiretroviral therapy, except for the age variable.

**Hypothesis 2**: Different healthcare rights have a statistically different effect on access to antiretroviral therapy.

Since the measurement level of the medical rights variable is a nominal variable which is different from other socioeconomic background variables, it is a ratio variable measurement, it was necessary to exclude the medical rights variable from the multiple regression analysis of other variables that test the socioeconomic background. For the measurement level to be suitable for the statistics used in the analysis, the researcher, therefore, chose analysis of variance to test this hypothesis as well. Since it is a test of the difference of values that are greater than two (Silpcharu, 2012). of testing the relationships of the group of variables (nominal or ordinal) and the variables are the quantitative variable (Silpcharu, 2012), (Wanichbancha, 2012), (Pitakthatsombat, 2011). Analysis of variance is appropriate statistics (Pitakthatsombat, 2011) For this reason, the test of the difference in access to antiretroviral therapy with the medical rights variable and the treatment of the patient was regardless of different medical privileges lead to different access to antiretroviral therapy.

Table 4.13 Shows the Statistics Comparing the Differences In Access to Antiretroviral Therapy Classified by Medical Rights.

| Access to antiretroviral therapy | Source of variance | df | SS | MS | f | P |
|---|---|---|---|---|---|---|
| Medical rights | Between groups | 2 | 16.798 | 8.399 | 2.035 | .132* |
| | Within the group | 565 | 2331.680 | 4.127 | | |
| | Total | 567 | 2348.478 | | | |

Note**:** * Statistical Significance at the Level of 0.04

Table 4.13 shows the statistics comparing the differences in access to antiretroviral drugs classified by medical rights. From the hypothesis testing table using variance analysis, it was found that the right to medical treatment and access to antiretroviral therapy was not significantly different. After that, a pairing test was performed using the Scheffe method. The results were analyzed as follows.

Table 4.14 Shows the Average Comparison of Access to Antiretroviral Therapy Classified by Medical Rights.

| Medical rights | Average | Universal Healthcare Coverage (Gold Card) or 30 -baht for all diseases | Social Security Rights | Civil servant Rights/State Enterprises |
|---|---|---|---|---|
| | | 4.23 | 3.84 | 4.00 |
| Universal Healthcare Coverage (Gold card) or 30 baht for all diseases | 4.23 | - | 0.39 | 0.23 |
| Social Security Rights | 3.84 | | - | 0.15 |
| Civil Servant Rights/State Enterprises | 4.00 | | | - |

Note**:** * Statistical Significance at the Level of 0.04

Table 4.14 shows the comparison of differences in access to antiretroviral therapy by medical rights. According to the table of the differences in access to antiretroviral therapy by medical rights, it was found that different medical rights do not make access to antiretroviral therapy differ significantly. Therefore, it can be concluded that when medical rights are different, access to antiretroviral therapy is not different, which is not according to the hypothesis.

## 4.3 Social Capital and Access to Antiretroviral Drugs in Thailand

The analysis of the data in this chapter tested the social capital theory, whether social capital factors are related to access to HIV antiretroviral drugs. Social capital in this research consists of two important components: one is the social network consisting of bonding and bridging, and the second component of social trust was divided into three categories: (1) generalize trust, (2) particularized trust, and (3) institutional trust.

In terms of social networks, they were divided into two components: bonding refers to a membership that is regularly engaged in a group/network in a community, such as kin, peer group, religious group, village committee, community enterprise groups), etc., a connected network. Bridging refers to a membership that is regularly active in groups/networks outside the community, such as the HIV-infected People Network, and the Network of the National Health Insurance Coordination Center Various volunteers), including full network participation. Full involvement means a membership in which one regularly participates in a group/network, both within the community and outside the community.

Social trust is a matter of the feeling of trust. There are three types of trust: generalized trust, meaning the feeling of trust/confidence in the general person which is the person who first met people of other religions, people of other nationalities. Particularized trust refers to a feeling of trust/confidence in a close/specific acquaintance, including family members, close friends, acquaintances, and institutional trust, referring to a feeling of trust/confidence in the service of an organization/personnel in public health related to the provision of antiretroviral therapy services

Regarding the social network measurement method, the measurement was divided into the bonding network and the bridging network that “Are you a regular member in a group/network/club/association within your living community? village committee "community Enterprises" with both closed-ended and open-ended solutions. For a closed-ended answer, the participant had to select a membership (if yes, answer next) in open-ended questions "Please specify the group/network/club/association within the participating community" by writing 5 groups/network. If the answer is not a member (Please skip to answer another question)

To measure a bridging network, the following statement was created in the questionnaire: “You are a member that regularly participates in activities in groups/networks/clubs/associations outside the living community, such as the HIV-infected network, network of the National Health Insurance Coordination Center, or various volunteers" For options, both closed-ended and open-ended answers were set, for closed-ended answers. The participant was to choose to answer whether he or she was a member or not (if yes, he or she was to answer the next question), which was an open-ended question through specifying groups/networks/clubs/associations outside the living community who participated in no more than five groups/networks with giving them a choice to answer that they are not a member.

For a generalized trust measure, the following question was posed: "How do you trust/trust most people in general?" For particularized trust, the question was made that "How much do you trust them?" and how to measure them? Institutional trust was asked if "You trust / believe in the institutions/agencies/health personnel, how much of the following? "

In measuring the dependent variable access to antiretroviral therapy, It was measured from the question that was created: “In the past year, have you received all the antiretroviral therapy prescribed by my doctor? Volunteers were asked to answer that they had received the complete number of drugs ……times.” Later, it was calculated as a percentage of the reach to compare the number of times receiving antiretroviral therapy with the full amount of medication prescribed by the doctor's appointment. If they received all of the medication that their doctor had prescribed, it

meant full access to antiretroviral therapy, but if the prescription was missed, the antiretroviral therapy was not fully accessible.

The results of the study were divided into two parts: analysis of the social capital data of the sample group. This was presented with descriptive statistics and analysis of the social capital hypothesis testing and access to antiretroviral therapy. It was presented with inferential statistics using multiple regression analysis to analyze whether the social capital variables were associated with access to antiretroviral therapy. There were other variables used in the relationship analysis as follows.

### 4.3.1 Social Capital Data of the Sample

For presenting the general data of the social capital analysis of the sample with descriptive statistics, percentage and mean results were presented. The details are as follows: a model of social network participation, the type of bonding network in which the sample participated, the type of bridging social network in which the sample participated, the degree of the opinion of the sample towards generalized trust, the opinion level of the sample towards particularized trust, and the level of the opinion of the sample regarding institutional trust.

Table 4.15 Forms of Participation in Social Networks.

| Participation in a social network | Percentage |
|---|---|
| Participation in a bonding network | 30.5 |
| Participation in a bridging network | 38.3 |
| Full involvement | 25.7 |
| Do not participate in any social network | 5.5 |
| Total | 100.0 |

Table 4.15 shows participation in social networks. From the table, it was found that most of the sample group joined a bridging network, which was a network where members regularly participated in activities in groups/networks outside the community, at 38.3%, followed by bonding networks. The characteristic of being a member that regularly participates in groups/networks within the community was at 30.5%; for full participation it was 25.7%.

Table 4.16 Types of Bonding Networks that the Sample Participated.

| Bonding Network | Percentage |
|---|---|
| Friend | 3.3 |
| Family | 3.3 |
| Village fund | 9.9 |
| Village women's group | 1.5 |
| Village elderly group | 1.8 |
| Village community group | 6.6 |
| Savings group | 4.7 |
| Village farmer group | 2.2 |
| Village cremation group | 5.8 |
| Housewife group | 6.6 |
| Village health volunteers | 6.6 |
| Village member | 3.3 |
| Religious group | 1.8 |
| Community Welfare Group | 0.7 |
| Village Committee | 1.5 |

Table 4.16 shows the types of bonding networks that the sample participated in. According to the table, it was found that most of them were in the village fund network of 9.9%, followed by the housewives' group and 6.6% were village health volunteers.

Table 4.17 Types of Bridging Social Networks in which the Sample Participated.

| Bridging Network | Percentage |
|---|---|
| Doi Luang Group | 4.0 |
| Our Heart Club Group | 12.0 |
| Yellow Rose | 2.6 |
| Clubs/Networks of People Living with HIV | 9.9 |
| Ban Bueng Sunflower Club | 9.5 |
| Thung Satoke Coordination Group | 1.1 |
| Friends of the Maung Na | 0.4 |
| A Group with Love and Ties | 1.1 |
| Sriracha Friends Club | 15.3 |
| Mary Welfare Center | 0.4 |
| Jit Ari Group | 1.5 |
| Hug Jiang Dao Group | 0.4 |
| Ruen Tham Rueanthep Group | 0.4 |
| A Large Group of Goats | 0.7 |
| Muang Phon Friends Group | 13.9 |
| Dan Samphan Friends Group | 8.0 |
| BAAC members | 2.2 |
| Maharaj Hospital Group | 1.8 |
| Ranot Hospital Group | 12.0 |
| Volunteer Group | 0.7 |
| San Pa Tong Holistic Center | 0.4 |
| People | 1.1 |
| Rainbow Sky Project | 0.7 |

Table 4.17 shows the types of bridging social networks that the sample participated in. The table shows that most of the sample group joined the Sriracha Club Network at 15.3% followed by Muang Phon Friends Club at 13.9%, and the Jai Khao Jai We Club and Ranaut Hospital Group at 12%. In addition to measuring social capital, one of the most important variables is social trust, consisting of generalizing trust and particularized trust (reliability). Cronbach's alpha values was .850, and institutional trust had a Reliability Cronbach's Alpha of .795, with the following analyses.

Table 4.18 Shows the Percentage, Mean, and Standard Deviation of the Sample's Level of Opinion on General Trust.

| Generalized trust | Level of trust/confidence | | | | | Total |
|---|---|---|---|---|---|---|
| | Strongly agree | Agree | Neither agree nor disagree | Disagree | Stron-gly disagree | |
| Most people can generally be trusted, | 13.7 | 25.4 | 40.3 | 9.8 | 10.7 | 100.00 |
| The person who first meet | 4.4 | 6.7 | 21.6 | 21.0 | 46.2 | 100.00 |
| People of other religions | 3.8 | 6.3 | 33.4 | 20.1 | 36.4 | 100.00 |
| People of other nationalities | 4.4 | 5.7 | 31.0 | 20.8 | 38.2 | 100.00 |
| $\bar{x}$ = 2.40 , S.D. = 1.12 , Min = 1 , Max = 5 | | | | | | |

Table 4.18 shows the percentage values. The mean and standard deviation of the sample group's level of opinion on generalized trust from the table revealed that most of the sample group had a level of trust/confidence in common at the disagree level (mean $\bar{x}$ = 2.40), where the first found trust was disagree and strongly disagree at 67.2%, followed by disagree and strongly disagree regarding other nationalities at

59%; trust in persons of other religions was at disagree and strongly disagree at 56.5, but trust/confidence; Neither agree nor disagree was at 40.3%.

Table 4.19 Shows the Percentage, Mean, and Standard Deviation of the Sample's Opinion Level on Particularized Trust.

| Parti-cularized trust | Level of trust/confidence | | | | | Total |
|---|---|---|---|---|---|---|
| | Strongly agree | Agree | Neither agree nor disagree | Disagree | Strongly Disagree | |
| Family members | 46.8 | 31.0 | 18.1 | 2.1 | 2.0 | 100.00 |
| Close friend | 13.3 | 23.2 | 39.3 | 10.4 | 13.9 | 100.00 |
| People you know | 6.8 | 14.1 | 35.3 | 22.6 | 21.2 | 100.00 |
| $\bar{x}$ = 3.30 , S.D. = 1.14 , Min = 1 , Max = 5 | | | | | | |

Table 4.19 shows the percentage, mean, and standard deviation of the degree of the opinion of trust/confidence towards particularized trust. The sample group had a level of trust/confidence towards particularized. the trust consists of family members, close friends, and acquaintances overall was neither agreed nor disagree, mean at $\bar{x}$ = 3.30, but found to have a strong level of trust/confidence in family members strongly agree and agree combined at 77.8%, followed by trust/confidence, a close friend at the level, neither agree nor disagree was 39.3%. As for trust/confidence in people, it was disagreed and strongly disagrees up to 43.8%.

Table 4.20 Shows the Percentage, Mean, and Standard Deviation of the Sample's Opinion Level Regarding Institutional Trust.

| Trust/confidence in agencies /health personnel | Level of trust/confidence | | | | | Total |
|---|---|---|---|---|---|---|
| | Strongly agree | agree | Neither agree nor disagree | Disagree | Strongly Disagree | |
| Provincial Hospital | 30.3 | 36.7 | 24.6 | 6.0 | 2.4 | 100.00 |
| Government Hospitals in Bangkok | 20.1 | 30.8 | 27.2 | 5.0 | 16.8 | 100.00 |
| Provincial Public Health | 18.9 | 30.0 | 32.2 | 8.2 | 10.5 | 100.00 |
| Phayal Ban Health Promotion Hospital | 22.0 | 28.4 | 29.2 | 12.4 | 7.9 | 100.00 |
| District/Community Network/Clubs for People Living with HIV | 40.5 | 32.3 | 22.1 | 3.1 | 2.0 | 100.00 |
| $\bar{x}$ = 3.61 , S.D. = 1.22, Min = 1 , Max = 5 | | | | | | |

Table 4.20 shows the percentage values, the mean, and standard deviation of the sample group's opinion on trust/confidence in health agencies/personnel (institutional trust). The sample group had an overall level of institutional trust/confidence towards public health agencies (institutional trust), with a mean of ($\bar{x}$ = 3.61). HIV infection was at the level of agree and strongly agree at 72.8%, followed by provincial hospitals, with trust/confidence at the level of agree and strongly agree at 67%. In addition, there was trust/confidence in agree and strongly agree, government hospitals in Bangkok was 50.9%, which was 0.4% more than the trust/confidence in the district/community health promotion hospital, while the provincial public health agency was a trust/trust agency at the agree and strongly agree 48.9%.

### 4.3.2 Analysis of Social Capital Hypothesis Testing Data and Access to Antiretroviral Therapy

Table 4.21 Research Hypothesis

| Research Hypothesis | |
|---|---|
| Research Hypothesis 3 | HIV-infected people with a bridging of social capital have a statistically significant positive correlation with access to antiretroviral therapy. |
| Research Hypothesis 4 | HIV-infected people with full involvement of social capital have a statistically significant positive correlation with access to antiretroviral therapy. |
| Research Hypothesis 5 | HIV-infected people with trust/confidence in the general public (generalized trust) have a statistically significant positive correlation with access to antiretroviral therapy. |
| Research Hypothesis 6 | HIV-infected people with the particularized trust in social capital have a statistically significant positive correlation with access to antiretroviral therapy. |

| Research Hypothesis | |
|---|---|
| Research Hypothesis 7 | HIV-infected people with institutional trust in social capital have a statistically positive correlation with access to antiretroviral therapy. |
| Research Hypothesis 8 | Government information about the right to antiretroviral therapy has a statistically positive correlation with access to antiretroviral therapy. |
| Research Hypothesis 9 | Engagement with government officials regarding HIV/AIDS work has a statistically positive correlation with access to antiretroviral therapy. |
| Research Hypothesis 10 | Staff adequacy in terms of antiretroviral therapy has a statistically positive correlation with access to antiretroviral therapy. |
| Research Hypothesis 11 | Having a convenient service process has been statistically positively associated with access to antiretroviral therapy. |

In this research, in order to test the relationships more clearly between social capital and access to HIV antiretroviral therapy, the socio-economic background factors were defined as the control variables. There are other variables, which are the implementation of policies in the correlation test as well, to confirm whether social capital variables influence access to antiretroviral therapy.

Table 4.22 Multiple Regression Analysis of The Relationship Among Socioeconomic Background Factors, Social Capital Factors, and Implementation of Policy to Access to HIV Antiretroviral Therapy

| Independent variable | Dependent variable: access to antiretroviral therapy | | |
|---|---|---|---|
| | Coefficients (Beta) | T | Significance |
| | Model 2 | | |
| | Socioeconomic background | | |
| Gender | .044 | .656 | .512 |
| Age | .052 | .762 | .447 |
| Years of studying | -.081 | -1.167 | .245 |
| Income | -.010 | -.137 | .891 |
| Distance from residence to the hospital | .123 | 1.832 | .068 |
| | Social capital | | |
| Participating in a Bonding Network | .197 | 2.300 | .022* |
| Participating in a Bridging Network | .328 | 4.107 | .000** |
| Full involvement | -.287 | -2.634 | .009* |
| Generalized trust | -.023 | -.363 | .717 |
| Particularized trust | .116 | 1.931 | .054 |

| Independent variable | Dependent variable: access to antiretroviral therapy Coefficients (Beta) | T | Significance |
|---|---|---|---|
| Institutional Trust Policy Implementation | .102 | 1.978 | .049 |
| Sufficiency of personnel providing ART treatment services | .174 | 1.935 | .054 |
| Convenience in receiving ART treatment services | .105 | 1.100 | .273 |
| Perception of information about the right to free treatment | -.157 | -2.176 | .331 |
| Engaging in actions with government officials | .080 | .966 | .335 |
| R = .401 $R^2$= .161 Adjusted $R^2$= .102 F = 2.712 n = 665 Sig. = 0.001 | | | |

Note: * Statistical Significance at a Level of 0.04.

**Statistical Significance at a Level of 0.01

Table 4.22 shows the coefficient from the multiple regression analysis of the relationship among the dependent variables, i.e. access to ARV vs. the independent variables, i.e. socio-economic background variables. The control parameters consisted of gender, age, number of years in school, income, and distance from accommodations to hospital. Social capital variables included joining a bonding network, participating in a bridging network, full involvement, generalized trust, particularized trust, and institutional trust. The policy implementation variables included the adequacy of the personnel providing treatment services, the convenience of receiving treatment services, the perception of information about the right to free treatment, and engaging in actions with government officials.

According to the table, it was found that Model 2, F = 6.652 (Prob = 0.001) was less than 0.04, indicating that the equation analyzed was reasonable and reliable with R2 = .161, showing that some of the independent variables were affected. The dependent variable was 16%. For the coefficient of the relationship between the dependent variable. There were only four independent variables that were associated

with access to antiretroviral therapy. The social capital variables includes bonding network, bridging network, full involvement, and institutional trust.

By joining a bonding network, a bridging network, full involvement, and institutional trust, there was a positive correlation with access to antiretroviral therapy, which means that when people with HIV join a bonding network, bridging network, full Involvement, and Institutional, trust affected greater access to antiretroviral therapy.

The full involvement variables were negatively correlated with access to HIV antiretroviral therapy. This means that being fully involved in a social network can lead to reduced access to antiretroviral therapy. Because from the information that the samples provided, it showed that participating in a bonding network is a community-based group and the non-HIV-positive general population can join it. For example, 9.9% participated in the village capital, followed by 6.6% belonging to the village community and housewives. If people in the community have misunderstanding of AIDS, it can influence behavioral expressions, such as showing disgust or expulsion from groups or residential communities. Therefore, joining the two groups, if people do not understand, it could have an impact on the fact that people with HIV have access to ARVs. In contrast to joining a social network, bridging involves joining a network outside the community where most of the people living with HIV come together to form a specific group. The majority of the samples, 15.3%, were members of the Sriracha Friends group, 12.9% were members of the Muang Phon Friends Group, and 12% were members of the Ranaut Hospital and Jai Khao Jai We Club to express the identity of the group. As a result, people with HIV may be more likely to join a bridging social network than bonding networks or bridging networks promote more access to antiretroviral therapy.

In terms of bridging network participation, the beta value was the highest, meaning that the more HIV-infected people that joined the bridging network, the more access they had to antiretroviral therapy, followed by joining the bonding network and institutional trust. However, no statistically significant relationship was found between generalized trust and particularized trust with access to HIV antiretroviral drugs. This is likely because of the belief that people in society have a negative view of HIV-positive people, or they are stigmatized or discriminated against

or are shown disgust. These problems hinder access to the services for people living with HIV (Center, 2015). As a result, people with HIV are afraid to tell or trust people that they are HIV positive because they are afraid to be discriminated against or that they will be shown disgust, and fear going to a service and this may affect their decision to have a blood test (Center, 2015).

Regarding the control parameters, they were socio-economic background, including gender, age, number of years studying, income, and distance from a hospital, and no statistically significant association was found with access to HIV antiretroviral drugs. Therefore, the socio-economic background factors (gender, number of years studying age, distance traveled from residence to nursing home, and income) did not influence access to antiretroviral therapy.

The policy implementation variables included the adequacy of the personnel providing treatment services, the comfort of receiving treatment services, information about the right to free treatment, and participation with government officials found no statistically significant association with access to HIV antiretroviral drugs either.

It can be concluded that only social capital variables influence access to antiretroviral therapy. When the social capital variables were tested for consensus, it was found that they consisted of participating in a bonding network, a bridging network, and institutional trust and that they influenced access to antiretroviral therapy, except for generalize trust, particularized trust, and full involvement, which were not based on the research hypotheses. The results of the research hypotheses can be summarized as follows.

Research hypothesis: HIV-Infected individuals with the bridging in social capital had a positive statistically significant correlation with access to antiretroviral therapy, and therefore the hypothesis was accepted.

Research hypothesis: HIV-Infected individuals with the full involvement in social capital had a positive statistically significant correlation with access to antiretroviral therapy, and therefore the hypothesis was not accepted.

Research hypothesis: HIV-Infected individuals with the generalize trust in social capital had a positive statistically significant correlation with access to antiretroviral therapy, and therefore the hypothesis was not accepted.

Research hypothesis: HIV-Infected individuals with the particularized trust in social capital had a positive statistically significant correlation with access to antiretroviral therapy, and therefore the hypothesis was not accepted.

Research hypothesis: HIV-Infected individuals with the institutional trust in social capital had a positive statistically significant correlation with access to antiretroviral therapy, and therefore the hypothesis was not accepted.

Research hypothesis: Government information about the right to antiretroviral therapy had a positive statistically significant correlation with access to antiretroviral therapy, and therefore the hypothesis was not accepted.

Research hypothesis: Participation with Government Officials about HIV/AIDS works with government officials whether participating in community meetings, participating in operations, participating in the planning, participating in policymaking, had a positive statistically significant correlation with access to antiretroviral therapy, and therefore the hypothesis was not accepted.

Research hypothesis: Staff adequacy of antiretroviral therapy service had a positive statistically significant correlation with access to antiretroviral therapy, and therefore the hypothesis was not accepted.

Research hypothesis: The availability of a convenient ART service process of social capital had a positive statistically significant correlation with access to antiretroviral therapy, and therefore the hypothesis was not accepted.

## 4.4 Benefit Incidence Analysis of Universal Health Coverage Promotional Access to Antiretroviral Therapy

Regarding the content of this chapter, the benefit incident analysis of the policy for promoting access to eligibility for antiretroviral therapy under the National Health Coverage was based on the antiretroviral therapy budget of the National Health Security Office, for annual fiscal year 2018. The purpose of this research was to determine whether the benefits of the antiretroviral therapy budget were distributed among populations of economies or income classes and whether they were different.

Therefore, the data analysis of this research was used from 665 samples of the personal and household income questionnaires. This was a method of dividing the

poor and the better income groups into equal numbers (National Statistical Office, 2019: 4): (1). The lowest-income class was at 20%; (2) the low-income class was at 20 %; (3) the middle-income class was at 20 %; (4) the high-income class was at 20 %; and (5) the highest income class group was at 20%. To make the data collected realistic, the results of the 2019 household socio-economic survey were carried out in the monthly income survey. The household was classified into five groups to be compared with the results from the questionnaire.

In addition, budget figures were introduced. The National Health Security Office's HIV drug treatment of 2,952,249,600 baht (National Health Security Office, 2018b). was also conducted in the benefit incidence analysis in this research. A summary of the data analysis results are as follows.

Table 4.23 Average Annual Household Income from the 2019 Household Socio-Economic Survey

| Income class 20% per group | Average monthly income (baht) | Average annual income (baht) |
|---|---|---|
| Group 1 (lowest income) | 2,796 | 33,552 |
| Group 2 (low income) | 5,201 | 62,412 |
| Group 3 (middle income) | 7,785 | 93,420 |
| Group 4 (high income) | 11,779 | 141,348 |
| Group 5 (highest income) | 26,228 | 314,736 |
| Total | 53,789 | 645,468 |

Note **:** National Statistical Office (2019).

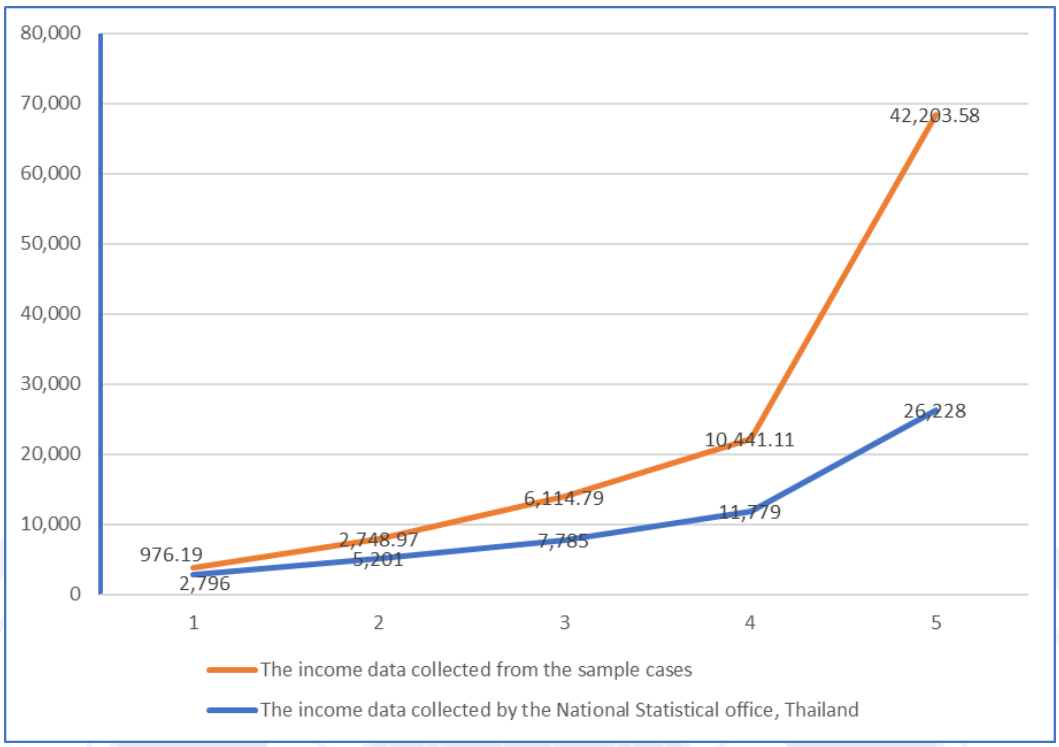


Figure 4.1 Compares the Monthly Income of Citizens between the Data of the National Statistical Office and the Data from the Survey of the Sample Group Using the Five-Quintile Income Stratification Method

Source: National Statistical Office (2019).

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Figure 4.1 shows the household income from the 2019 National Statistical Office's Socio-Economic Survey 2019 compared with the household income of the sample questionnaire, and it was found that the data on income were in the same direction and that each income class was not much different. Even for the income groups surveyed by the National Bureau of Statistics, when grouped, the overall picture was higher than that of the questionnaire; however, the income of each group, when compared, was fit the reality.

Table 4.24 Average Annual Household Income of the Sample by Income Level from the Questionnaire

| Income class<br>20% per group | Average monthly income<br>(baht) | Average annual income<br>(baht) |
|---|---|---|
| Group 1 (lowest income) | 976.19 | 11,714.28571 |
| Group 2 (low income) | 2,748.97 | 32,987.7551 |
| Group 3 (middle income) | 6,114.79 | 73,377.55102 |
| Group 4 (high income) | 10,441.11 | 125,293.3878 |
| Group 5 (highest income) | 42,203.58 | 506,443.299 |
| Total | 62,484.64 | 749,816.2786 |

Table 4.24 shows the average annual household income of the sample according to the questionnaire income level. From the table, it was found that group 5 was the group of people in the highest income category, with a median household income of 506,443.299 baht per year, followed by group 4, which was in the high-income category. The median household income was 125,293.3878 per year from the total sample income. Group 1 (lowest income) had an annual median household income of 11,714.28571 baht, while group 2 (low income) had a median annual household income of 32,987.7551 baht. The division of the poverty line by the National Statistical Office as a basis for the grouping was found. In terms of the poverty line average throughout the country, people have an income of 2,710 baht per month or 32,520 baht per year, where group 2 passes the poverty line at only 467.7551 baht, even though they may pass the poverty line. However, considering the income that escapes the poverty line, it may still be considered poor, which is more in line with the facts.

Table 4.25 Distribution of Benefits for HIV Antiretroviral Drug Access by Poverty Line.

| Income of people accessing HIV antiretroviral drugs per year | percentage |
|---|---|
| Income below the poverty line | 31.00 |
| Income above the poverty line | 69.00 |
| Total | 100.00 |

Source: National Statistical Office (2019).

Note: The Poverty Line is Divided According to the Criteria of National Statistical Office (for 2018, the Poverty Line was 32,520 Baht/Person/Year and in 2019 the Poverty Line was 33,156 Baht/Person/Year).

Table 4.25 shows the distribution of benefits of HIV antiretroviral drug access by poverty line. The table shows that the distribution of benefits for people with access to ART is 31% below the poverty line, while 69% of those that have access to ART have income above the poverty line.

Table 4.26 Percentage Distribution of Benefits in Accessing Antiretroviral Therapy by Eligibility Medical Treatment.

| Income class 20% per group | Universal Health Coverage (gold card) or 30 baht for all diseases | Social security rights | Civil servant/state enterprise rights |
|---|---|---|---|
| Group 1 (lowest income) | 79.20 | 17.82 | 2.98 |
| Group 2 (low income) | 79.00 | 18.0 | 3.0 |
| Group 3 (middle income) | 88.50 | 9.20 | 2.30 |
| Group 4 (high income) | 71.58 | 25.26 | 3.16 |
| Group 5 (highest income) | 58.94 | 41.06 | 0.0 |

Table 4.26 shows the distribution of benefits for access to HIV antiretroviral drugs according to treatment eligibility. It was found that the percentage of distribution of benefits for access to HIV antiretroviral drugs was categorized by group 1 (lowest income) and group 2 (low income) eligibility, or the poor had the most access to the Universal Health Coverage (Gold Card) or 30 baht for the

treatment of all diseases. Table 4.25 shows the distribution of benefits for access to HIV antiretroviral drugs by treatment eligibility. It found that the percentage of distribution of benefits for access to HIV antiretroviral drugs was categorized by group 1 (lowest income) and group 2 (low income) eligibility, or the poor had access to Universal Health Insurance (Gold Card) or 30 baht for the treatment of all diseases. However, when considered by class, it was found that the third group (middle income) benefited more than all income tiers by benefiting at 88.50% of universal health insurance (Gold card) or 30 baht for all diseases, while the income tier 4 (high income) also benefited from treatment eligibility no different from Group 1 (lowest income) and Group 2 (low income).

Regarding social security rights, the fourth (high-income) and fifth (highest income) groups benefited from the highest social security eligibility at 25.26% and 41.06 %, respectively. Social security benefits fall more on non-poor groups. Civil servants/state enterprise rights are rights in which all income tiers receive the same distribution of benefits from access to antiretroviral drugs to a lesser extent.

In addition, the results of the analysis revealed very interesting information about the use of the Universal Health Coverage (Gold card or 3 0 baht to treat all diseases). These rights benefit people of all income groups, not just the low-income groups. In particular, the fifth group (highest income) benefited from this right more than any other comparative right of the same sample.

# CHAPTER 5

## CONCLUSION, DISCUSSION, AND RECOMMENDATIONS

The purpose of this research on social capital and access to antiretroviral drugs in Thailand was to examine the relationship of social capital and its influence on access to antiretroviral therapy in Thailand. In addition, this study analyzed the benefit incidence distribution of antiretroviral drug access promotion policies among populations with different income levels in the NHS using quantitative research methodology. In order to collect data using questionnaires, the data were collected from a total of 665 HIV-infected people that were registered in HIV-infected and in ART for a total of 665 samples/persons from a database of information services for HIV infection services of the National Health Security Office (NHSO) in 13 medical service areas nationwide in Thailand. All of the data were analyzed using IBM Version 26 SPSS package. Quantitative data were analyzed using descriptive statistics, i.e. number and percentage of samples classified by sex, age, number of years studying, the right to medical treatment, etc. Analysis was carried out to classify groups according to income class according to economic principles called quintile by income, including inferential statistics for analyzing the factors of socio-economic background such as gender, number years of highest education, distance traveled in kilometers, income level, and statistical regression analysis. The eligibility variable received ANOVA. The social capital variable consisted of social confidence as measured by five levels of confidence/trust. Mean was used in the analysis. Social networks were treated as dummy variables (0 was participating and 1 was not participating) and then these used for the regression analysis. The policy-implementation variables consisted of government information sharing as measured by the number of exposures to free antiretroviral treatments using regression analysis. Regarding the staff variables, allow patients to participate measured by the number of participations in various fields. Regression analysis was used. Staff adequacy was

measured on a 5-point scale. Means were used for convenience HIV drug delivery process measured from 5 levels of opinion. Mean was used for analysis. The dependent variable was the percentage of access to antiretroviral drugs (number of times receiving complete medication as prescribed by the doctor) using regression analysis. In addition, when analyzing the independent variables (the case of multiple quantitative variables) affecting access to antiretroviral drugs (dependent variable), multiple regression analysis was used. In addition to this, this research has also been certified for human research ethics. (Institutional Review Board: IRB) from the National Institute of Development Administration, Human Research Review Board Ministry of Public Health, and the local research committee that collected all the data.

## 5.1 Conclusion

In terms of the conclusion of the quantitative data analysis in this research, it answers two research objectives: the relationship of social capital and the influence on access to antiretroviral therapy in Thailand, and the distribution of benefits of policies promoting access to antiretroviral therapy among populations with different income levels in the universal health coverage. The results of the study can be summarized as follows.

### 5.1.1 Social Capital and Access to Antiretroviral Therapy in Thailand

Social capital was divided into two main components: social network, which consists of two forms: bridging and bonding. There are three types of social trust: 1) generalized trust, 2) particularized trust, and 3) institutional trust. From the hypothesis testing, it was found that participation in a bonding network of social capital influences access to antiretroviral drugs. There was a statistically significant positive correlation with access to antiretroviral therapy.

### 5.1.2 Benefit Incidence Analysis of National Health Coverage Promotional Access to Antiretroviral Therapy

In an analysis of the distribution of benefits of policies promoting access to antiretroviral therapy in the National Health Coverage, the five income strata were

quintile. The poor and wealthier income groups were divided into equal numbers, consisting of the lowest income group at 20%; 2) the lower-income group at 20%; 3) the middle-income group at 20%; 4) 20% in the high-income class; and 5) 20% in the highest income-in-class group. It was found that those in the highest-income class had a median household income of 506,443.299 baht per year, while group 1 (lowest income) had a median household income per year of 11,714.28571 baht, while group 2 (low income) had a median household income per year of 32,987.7551 baht. The results of the analysis of the distribution of benefits in access to ART by eligibility for treatment revealed that the poor (group 1 with the lowest income and group 2 with low income) had access to universal health coverage (Gold card or 30 baht treating most of all diseases). However, when considered by class, it was found that group 3 (middle income) benefited more than all income classes with benefits from universal health insurance (gold card or 30-baht, treatment for all diseases) up to 88.50%, while the fourth income group (high income) also benefited from such treatment privileges, not different from group 1 (lowest income) or group 2 (low income).

For the social security rights, group 4 (high income) and group 5 (highest income) benefited the highest at 25.26% and 41.06%, respectively. Social security benefits fall more on non-poor groups, while regarding the rights of civil servants/state enterprises, all income strata have the same distribution of benefits from access to antiretroviral therapy to a lesser extent.

In addition, the results of the analysis revealed very interesting information about the use of health insurance for all (gold card or 30 baht to treat all diseases). This privilege benefits people of all income classes, not just the low-income groups. In particular, the fifth group (highest income) benefited from this privilege more than any other comparative privilege of the same sample.

## 5.2 Discussion of Results

### 5.2.1 Social Capital and Access to Antiretroviral Therapy in Thailand

In this research on social capital and access to antiretroviral therapy in Thailand, the research hypotheses have been established to test what the influencing factors for access to antiretroviral therapy are. The factors tested included

socioeconomic background factors, social capital factors, and policy implementation factors. The variables in terms of factors of socioeconomic background were the control variables.

From a multiple regression analysis of the relationship between the dependent variable, access to antiretroviral drugs, and the independent variable, i.e. socioeconomic background variables (control variables) consisted of sex, age, number of years of study, income, distance from accommodations to hospital. The social capital variables included social networks in bridging, and social networks in bonding networks, joining social networks with full involvement, generalized trust, particularized trust, and institutional trust. In addition, the variables in the conversion of policy into practice consisted of the adequacy of personnel providing treatment services, the convenience of receiving treatment services, awareness of information about free treatment rights, participation in actions with government officials, where the following was found.

The equations analyzed were appropriate and reliable, with R2 = .161 indicating that some independent variables could account for 16% of the dependent variables for the coefficient. The coefficient of the relationship between the dependent variable, that is, access to antiretroviral therapy, and the independent variable found that the social capital variables influenced access to antiretroviral therapy. Only three independent variables were statistically associated with access to antiretroviral drugs, which consisted of the bridging network, the bonding network, and full involvement for the socio-economic background variables. The control variables consisted of sex, age, number of years of study, income, and distance from accommodations to hospital. The factors in the implementation of the policy were the adequacy of the personnel providing treatment services, the convenience of receiving treatment services, awareness of information about free treatment rights, and participation in action against government officials. It was found to not influence access to antiretroviral therapy. This is different from research or literature that has been carried out and presented before this research. This will be discussed in the next session.

Regarding the bridging and bonding networks, there was a positive correlation with access to antiretroviral drugs. This means that as more people living with HIV

join a bridging network, more bonding networks lead to greater access to antiretroviral therapy.

The "full involvement" variable was negatively correlated with access to ART, meaning that full participation in social networks may lead to a decrease in access to ART, because if joining a bonding network, which is a community-based group and a general group of people who are not HIV-positive can join, being a normal person, especially in the community, if there is a lack of a proper understanding of AIDS, it can affect behavioral expressions such as showing disgust or expulsion from a group or community. There are still many people in a society whose beliefs or attitudes about HIV infection as the same as AIDS. It may express disgust for people with HIV. According to the 2014 Nationwide Public Health Survey on the issue of stigma and discrimination against HIV, it was found that people living with HIV or that are suspected of having HIV infection were shunned at 68.9%, and 51.1% do not buy food from people living with HIV and are embarrassed if their family members have AIDS at 37.5% (National Center for AIDS Management, 2017). Having a community's correct understanding of HIV and AIDS is likely to influence decision-making about access to public healthcare. A study by Campbell et al. (Campbell et al., 2013) found that community group members affected the reduction of the spread of HIV, reducing stigma, and improving access to health services.

Therefore, joining both groups of social networks, in particular, joining a social network for bonding, could also affect the inability of HIV-positive people to have full access to antiretroviral therapy, Putnam (2000) said that a bonding network leading to narrow social capital does not encourage listening to members of the group among themselves. There is a possibility of being infected with HIV or AIDS.

In contrast to joining a connected social network, bridging it involves joining a network outside the community and where the majority of people living with HIV come together to form a specific group to express their identity. For example, the majority of the sample group, 15.3%, were members of the Friends of Sriracha group, followed by 12.9% of the Friends of Muang Phon group and 12% were members of the Ranot Hospital Group and the Jai Khao Jai Rao Club. Such societies may be more likely for people living with HIV to join than a bonding network or to join a connected network. Bridging produces positive external effects, unlike bonding

networks (Putnum & Gross, 2002). Bridging networks encourage collaboration and broad integration, and promotes broader social capital (Putnum, 1995) . It is trusted, because it can improve community cohesion. It is synergy among groups that is not related but can mediate connections for collaboration (Martikke, 2017) and direct access to what is useful (Alvarez & Romani, 2017); in this case, access to antiretroviral therapy and access to information about the benefits package. When they meet, information is exchanged with each other. In addition, joining this network creates general trust and norms. This makes it more accessible to diverse resources and creates innovation (Nishide, 2009); (Alvarez & Romani, 2017)

In terms of bridging, the beta value was the highest, meaning that the more HIV-positive people joined the bridging network, the more access they had to antiretroviral drugs followed by joining a bonding network. Having high social capital will have an impact on preventing the spread of HIV. Communities with strong social capital will be able to prevent the spread of HIV (Frumence, Killewo, Kwesigabo, Nystrom, Erikssion, & Emmelin, 2010) . In addition, increased social capital brings about better treatment outcomes (Musanse, SCharalanbous, & Neison, 2017), consistent with Rocco and Suhcke (2012) finding that the role of positive of social capital is a factor in determining better health.

However, the results of this study did not find a statistically significant relationship between generalizing trust and access to antiretroviral drugs. This is likely to be related to the belief that people in the society have regarding people with HIV, where stigma/discrimination is a barrier to access to services for addicts. HIV (National Center for AIDS Management, 2017). As a result, people with HIV are reluctant to tell or trust the public that they are HIV positive for fear of being discriminated against or being shown disgust.

The control variables were socio-economic background comprising sex, age, number of years of study, income, and distance from accommodations to hospital, and they were found to have no influence on access to antiretroviral drugs. These findings differ from the research prior to this study. Research by Tran et al. (2016); Elmawazini, Manga, Nwankwo, and AiNaser (2017); Dako-Gyeke, Snow, and Yawson (2012); Loubiere et al. (2009) found that gender differences were also associated with access to antiretrovirals. Females have more access to antiretroviral

drugs than males. However, in this study, gender differences were not statistically associated with access to antiretroviral drugs; the proportion of males receiving antiretroviral drugs compared to females was only 1.3%.

As for the level of education, other findings have been presented where different levels of education are also associated with disparities in access to antiretroviral therapy (Tran et al., 2016); Loubiere, Boyer, Protopopescu, Bonono, Spire, and Moatti (2009) but for this, despite the differences in the sample population, 32.5% were in the six-year education system, followed by 12, 21.1%, and the average number of years of study was 8.9. years, but the number of years of study did not hinder access to antiretroviral drugs.

Income variables were among the most studied variables, finding that poverty or economic status was one of the major factors associated with access to antiretroviral therapy (Allin, Masseria, Sorrenson, Papanicolas, & Mossialos, 2007; Elmawazini et al., 2017; Loubiere et al., 2009; Peter, Anu Garg, Walker, Brieger, & Rahman, 2008; Yawson et al., 2012); that is, people with higher economic status are more likely to have access to healthcare than those with lower economic positions, although in many countries this may be the case, especially for the poor with HIV who do not have enough income for treatment (Himakalasa, Grisurapong, & Phuangsaichai, 2013).

However, since 2006, Thailand has set up a government policy to ensure access to HIV antiretroviral drugs in the health insurance system (for people with HIV that are Thai and have a 13-digit number) (World Bank & UNAIDS, 2003) and the 2014 policy of free blood testing twice a year and antiretroviral therapy for all treatment rights regardless of white blood cell count. (CD4), which has continued to implement such policies, this allows Thai people living with HIV to receive treatment without any cost. According to the data collection, it was found that the sample group with income less than 36,000 baht accounted for 37.1%, while the sample group with an income from 36,001 baht or more amounted to 66.23%, This shows that different income groups had access to anti-drug treatment HIV as well.

As for the distance from accommodations to receiving ART at the hospital, the results were contrary to other studies. A study by Himakalasa, Grisurapong, and Phuangsaichai (2013).

Posse, Meheus, van Asten, van der Ven, and Baltussen (2008) found that distance from home to healthcare was a factor in accessing public health. However, this study found that the distance traveled from home to the hospital did not influence access to antiretroviral drugs. Although the distance traveled for treatment at the hospital of the samples was different, the distance between 1-10 kilometers for treatment at the hospital was 45.7%, followed by a distance of 11-20 kilometers from the accommodations to receiving antiretroviral therapy (22.4%). This shows that hospitals currently eligible for antiretroviral therapy are likely to have a greater distribution in village communities, as evidenced by the questionnaire responses. Most of the respondents lived outside the city, 82.1% lived in the city, and 17.6% lived in the city.

Interestingly, the results of this study revealed that the socioeconomic background variables, including sex, age, number of years studying, income, and distance from accommodations to the hospital did not influence access to antiretroviral therapy.

This shows that Thailand has been very successful in giving HIV-infected people access to HIV antiretroviral therapy according to the World Health Organization criteria. It has been determined that font percent of people are entitled to access to treatment, while those that do not have access to government or civil society must continue to promote or develop the process. The system gives people more access to treatment. According to the UN Political Declaration on HIV 2016, the goal is to provide 90 % of the population with access to antiretroviral therapy and they must have access to quality treatment, i.e. antiretroviral drugs can suppress 90 % of the virus as well.

The variables in the implementation of the policy consisted of the adequacy of the personnel providing the treatment services, convenience of receiving treatment services, awareness of information about the right to free treatment, and participation in action against government officials, which were not statistically related to access to antiretroviral therapy.

### 5.2.2 Benefit Incidence Analysis of the Policy to Promote Access to Hi Antiretroviral Therapy

In order to measure the benefits that citizens receive from the state budget by analyzing the different income tiers, it is important to know who benefits. (Thailand Development Research Institute, 2014). However, it is uncertain whether the benefits from public expenditures are spread to the poor (Buracom, 2016; Estrada et al., 2014), and it is uncertain whether the benefits from public expenditures are distributed evenly across groups (Buracom, 2011, 2013; Davoodi et al., 2003). Benefit distribution is more favorable to the poor or the rich (Buracom, 2013). In order to measure the benefits from government spending, also known as Benefit Incidence Analysis (Demery, 2000), it is, therefore, an important and useful tool to answer these questions (Buracom, 2011, 2013; Davoodi et al., 2003). A recent study found that both the poor and the rich benefited from public expenditure beneficiaries (World Bank Group, 2017).

According to the benefit incidence analysis of access to antiretroviral therapy classified by medical eligibility, it was found that the poor (Group 1, the lowest income and Group 2, the low income group) received a distribution of benefits for access to HIV antiretroviral drugs the most from the right to Universal Health Coverage. This is unlike many studies that have found that public health expenditures benefit wealthy households more than poor households (Buracom, 2011, 2016; Castro-Leal et al., 2000; Chen et al., 2015; Davoodi et al., 2003; GlinsKaya, 2005; Meerman, 1979; Wagstaff et al., 2014). In particular, the ASEAN region has distributed benefits that favor the rich over the poor (Wagstaff et al., 2014).

In addition, a study by Donnell et al. (Donnell et al., 2007), which examined the impact of public expenditure on health care systems, comparing 11 countries in Asia, found that the distribution of public expenditure on healthcare systems was significantly higher. Health benefits the rich more than most poor people in developing countries. A research project of the Thailand Development Research Institute (Thailand Development Research Institute, 2014) on economic reform for social justice found that estimates of the distribution of benefits from public health expenditure showed a tendency to focus on well-off groups; especially those in the top 20% benefit from state healthcare spending more than any other group. Such

expenditure allocations benefit more economically wealthy households than poorer economic households, which is considered extremely unfair because it creates even greater gaps in social and economic inequality.

Including research on public health expenditure on access to antiretroviral therapy, Tran et al. (Tran et al., 2016) found that the rich benefit more than the poor from following antiretroviral therapy, while the poor benefited greatly in the early stages of treatment. In addition, research in case studies in Thailand, a United Nations Development Program study (United Nations Development Programme, 2017) found that the wealthy also benefit from access to antiretroviral therapy, while the poor benefited more, though the government wants the benefits to be distributed more to the poor.

### 5.2.3 Policy to Promote Access to Antiretroviral Therapy in Thailand

Regarding the Policy to Promote Access to antiretroviral therapy, it began in 1991 and has been revised up to the present and can be divided into three periods. The first era is before the Universal Health Coverage: the beginning of access to antiretroviral therapy, B.E. 1991-2000, The second era is between Universal Health Coverage: the era of development towards universal access to antiretroviral therapy 2001-2006; and the third era is after Universal Health Coverage: the Compulsory Licensing era, or CL) to Ending AIDS 2007-2018. The change in policy in each phase has increased access to antiretroviral therapy accounting for three times the ratio of each previous period. This further illustrates the necessity of public policy formulation that directly affects changes in the desired goals. As Chang, Kaltani and Loayza (2005) say, policy reforms helping countries to benefit from international competition produce a positive impact, which is of great importance to a country's economy and development.

The formulation of policies to address the problem of AIDS and HIV that has been a priority in all countries around the world has therefore been given importance and set as a national policy in many countries. Many other countries have put in place laws that consider public policy as a positive policy (Thamrongthanyawong, 2017), as can be seen in the research of Ha, Pharis, Huong, Thi, Chuc, Brugha, and Thorson (2010), who studied the evolution of HIV policy in Vietnam and found that in 2006

the government of Vietnam passed a law for people living with HIV to promote HIV prevention, care for people living with HIV, reduce the harm from needle syringes, and to have health insurance policies for people living with HIV.

Countries that have been successful in tackling AIDS and access to antiretroviral have been praised and set as examples to countries around the world, such as Brazil and the Republic of Malawi. It is also used to issue laws or to set national agenda as well. Regarding a study by Nunn, Fonseca, Bastos, and Gruskin (2009) on AIDS care in Brazil, the impacts and challenges found in (1996) public policy response to HIV/AIDS in Brazil, the council of Brazil enacted a Free Treatment Guarantee Law, and guarantees access to medicines for AIDS care. In addition, the Ministry of Public Health in Brazil has also implemented a variety of strategies in the area of AIDS drugs by producing drugs and procuring drugs for the treatment of AIDS patients. As a result of its policies, in 2018, the Brazilian government announced the largest reduction in AIDS-related deaths in the world as a result of its policy of access to prevention, testing, and prevention more HIV infection (WHO, 2021a)

The Republic of Malawi, formerly Nyasaland, is a densely populated democratic state in southeastern Africa. It is another country that has made progress in HIV policy by making HIV policy a national policy. The principles of equal access to treatment and continuity of treatment are important regardless of gender, age, ethnic group, or sexual orientation (Ministry of Health National AIDS Commission of Malawi, 2005). Malawi is a world leader in the design and implementation of highly progressive HIV policies (Dasguptaa et al., 2016)

In addition, the inclusion of antiretroviral drugs in Thailand's universal health insurance system has resulted in a reduction in dependence on international organizations, which has resulted in the government restructuring its powers. The management of the country is independent without interference and can listen and design policies that are in line with the needs of the people of the country. Reducing dependency is therefore essential because dependency decreases a country's capacity to plan development strategies (ActionAid UK Head Office, 2011), especially in solving the sustainable AIDS problem, when the country has sufficient learning processes and knowledge to a certain extent, as well as the participation of

stakeholder groups that come from the integration of civil society networks and people that have emerged in Thailand to drive policy on HIV antiretroviral access. It has given rise to a public policy development model and favorable outcomes from a significant increase in the number of people accessing antiretroviral drugs, thus reducing foreign dependence and increasing the power of HIV prevention. The management and power of national collective action have directly influenced the development of antiretroviral drug access policies in Thailand. This is in line with the principles of policymaking that considering the needs of the people of the country and the national context, which is the most important aspect of policymaking. However, the context of reducing foreign dependence on financial matters may be appropriate for some countries, especially those with sufficient financial resources. However, for some countries, reducing their financial dependence on international organizations may affect access to antiretrovirals, especially in poor countries, including some middle-income countries, due to limited resources. Haakenstad, et al. (2019) studied government expenditures on HIV/AIDS in 137 poor and middle-income countries. In 2016, total spending on HIV/AIDS increased from 4 billion (between 2.9 and 6 billion) to 19.9 billion (between 15.8 and 26.3). In poor and middle-income countries, 16.4 billion were spent on access to antiretroviral drugs in 2016, of which 17 million were infected with HIV, and nearly 50% of those infected reside in those countries and 75% of the costs are financed by international organizations, in particular the United States President's Emergency Plan for AIDS Relief (PEPFAR) and the Global Fund to Fight AIDS, Tuberculosis, and Malaria.

However, Haakenstad et al. (2019) argued that, despite PEPFAR's current financing, the reduction in US funding would affect both PEPFAR and the Global Fund to Against AIDS Tuberculosis and Malaria (the Global Fund to Fight AIDS, Tuberculosis, and Malaria), which has supported and people living with HIV are also at risk of reduced policy decisions by international organizations to obtain support. Therefore, reducing reliance on international organizations is considered a public policy development issue in Thailand and many other countries, which is of great interest, directly affecting access to antiretroviral therapy.

## 5.3 Policy Recommendations

Regarding policy suggestions, the researcher has the following suggestions.

### 5.3.1 Social Capital

This is because strong social capital will allow people to access public services (Putnum, 1993). Therefore, it should promote giving people social capital. The results of this research found that social capital influences access to antiretroviral drugs in Thailand. Social grants in this research include: bonding, bridging, and social trust, divided into three categories: general trust, particularized trust, and institutional trust. Therefore, the government should have a policy to encourage people to create more social capital. To begin with, the government should support the integration of people in networking. Bridging is a network in which members participate in activities in groups/networks outside the community, especially those with HIV, including supporting the integration of the people to join the network. Bonding is a network in which members participate in activities in groups/networks within the community; when they are grouped, they will exchange information with each other.

The government or related organizations should provide information through all types of media for the general public. Having the right attitudes about people living with HIV being able to coexist in their daily lives with non-HIV infected people will also play a key role in enabling people with HIV. HIV dares to show that they are HIV positive and go to public healthcare services due to social trust. In particular, it makes people with HIV build trust/confidence with people whom they do not know much about at first (generalized trust). Particularized trust that shows no disgust or discrimination against an infected person greatly influences decision-making about hospitalization in the community. This is because the society's beliefs about people living with HIV (stigma and discrimination) are a barrier to access to services (National Center for Management of AIDS Problems, 2017). This makes people with HIV reluctant to tell or trust the public that they are HIV-positive or afraid to tell the people in their family, relatives, or even close friends. The problem of showing disgust towards people with HIV is one of the goals of ending AIDS. The United Nations has tried to support countries around the world including Thailand, to

determine as the main policy to end AIDS within the year 2030 including building trust/confidence with institutions/ organizations/ public health personnel institutional trust. The results of this research indicate that the more that people with HIV place their trust in institutions/ organizations/ health workers, the more they will enter the treatment system.

### 5.3.2 Benefit Incidence Analysis

The theory of public expenditure has focused on who benefits (Buracom, 2013), especially the target groups that the government wants to receive public services, especially the poor (Buracom, 2016; Estrada et al., 2014; Younger, 1999). Therefore, the government or the National Health Security Fund of Thailand committee should formulate antiretroviral policies for the poor to receive free treatment in accordance with the provisions of the Constitution of the Kingdom of Thailand B.E. 2560 B.E. in Article 47: “A person shall have the right to receive public health services. A poor person shall have the right to receive public health services free of charge as provided by law. Individuals have the right to free state protection and eradication of dangerous infectious diseases.” For middle-class citizens, a co-payment policy may be applied, while the wealthy are more able to afford them, either requiring part of the pay or part of the government support or possibly setting aside a portion for the wealthy to pay more than the state.

In addition, access to healthcare is a component of universal health coverage (European Commission, 2016); it is not just public health policy that affects access to healthcare. Sometimes the relationship between access to treatment comes from other policies that have a direct impact, such as fiscal policy (European Commission, 2016). Considering the amount of Thailand's budget expenditure on HIV/AIDS from 2008 to 2018, it was found that there was a tendency for it to increase steadily, although there have been some declines in some years to an average of 8,279 million per year, including the budget allocated by the government to the National Health Security Office for medicines for HIV and AIDS patients. HIV antiretroviral therapy and related services that affect the amount of access to antiretroviral therapy have also increased.

However, if the government has a policy to promote access to antiretroviral drugs but does not allocate an adequate budget for the number of people living with HIV, the result will be that some people with HIV will not have access to antiretroviral therapy. As a result, another problem will be caused by the number of deaths that will increase as well. Therefore, the policy on HIV drug access and public expenditure or budget allocated by the government should be consistent with the number of people living with HIV to have access as much as possible because access to basic healthcare services is important. This gives people with HIV the opportunity to avoid AIDS, and it is an opportunity for the next step of treatment so that the disease does not become more serious (Azetsop & Diop, 2013). Therefore, all Thai citizens have the right to access quality and equal treatment, whether rich or poor, living in the countryside or in the city (Tamronglak & Wangmahaporn, 2015).

## 5.4 Recommendations for Future Study

Regarding future study on the issue of access to antiretroviral therapy in Thailand or related issues, the researcher has the following suggestions.

1) This study was based on a quantitative research methodology. Therefore, further studies may be conducted using a mixed-methods or qualitative research methodology, using in-depth interviews with all HIV-infected groups receiving ART. The question can be asked: What factors or components influence access to antiretroviral drugs, especially the factors or components of social capital to quantify the method.

2) The study consisted of a nationwide sample group collecting data from the medical services of the National Health Security Office in 13 districts. However, future research may compare whether people living in urban and rural areas of the National Health Security Administration's 13 districts have different access to antiretroviral therapy.

3 ) This study examined the distribution of benefits of antiretroviral access policies based on the healthcare eligibility of populations with different income strata. However, if the distribution of benefits of relevant policies or programs that target specific groups is studied, such as mother-to-child HIV prevention programs,

pre-exposure prophylaxis, HIV Exposure Prophylaxis (PrEP), or projects that focus on specific target areas of a policy or of a particular project, policy or project funded by the Global Fund may provide useful information to continue to drive policy and academic benefits further.

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