

## The Operation Model Development for Medical Cannabis Using of Public Hospitals in Sukhothai Province, Thailand

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### Abstract

This research aims to develop operation model for medical cannabis using of public hospitals in Sukhothai Province, Thailand that was divided into 3 phases. Phase 1 was a study of situations and problem finding in the operation of medical marijuana use in Public Hospitals in Sukhothai Province. Phase 2 is the development of a model for operating the medical cannabis use by in-depth interviews with hospital directors and medical marijuana operators. Phase 3 is a follow up on the results of the development of an operating model for medical marijuana use. Data was collected for a period of 6 months. The developing an operating model for the use of medical marijuana are 5 main dimension components, consisting of Policy, Management, Integration, Monitoring and Evaluation, Technology. The results was found that personnel providing services in the medical marijuana clinics include a variety of professions, such as doctors, dentists, pharmacists, Thai Traditional Medicine officers and nurses with the number of personnel attending training to serve more patients who come to receive services in medical marijuana clinics both Western Medicine and Thai Traditional Medicine tend to increase every year. The top 5 diseases include : Insomnia, Cancer, Muscular Tendon diseases, Neuropathic pain, Psoriasis that used in the treatment of Thai Traditional Medicine to treat symptoms and diseases, consisting of Ya Suk Sai yad 500 mg./cap., Ya Tum Lai Pra Sumen 2 g./pack, 5 Hemp oil topical, Ya Kae Lom Kae Sen 500 mg. In addition, Western Medicine is used to treat patients, consisting of THC : CBD/ 1:1, 7% THC. However, patients had side effects, consisting of : dizziness, ALT and AST increase, nausea and vomiting, sleepy, anxious, eGFR decreases, feel dry, heart palpitation. Therefore the development of operations is systematic and efficient. Including patients receiving a combination of Thai Traditional Medicine and Western Medicine that work together as a multidisciplinary team to use cannabis as an alternative treatment for patients. Taking into account efficiency and safety together and continued monitoring of symptoms and side effects in the treatment of patients at the hospital and at the patient's home.

**Keywords:** Medical cannabis extract, Thai traditional medicine, Side effects, Model

## Introduction

Cannabis is a plant in the Cannabis family. The scientific name is *Cannabis sativa* L. (Chokevivat , 2019). It has been used as a food and used in Thai Traditional Medicine and Western Medicine for a long time. The cannabinoids are an active and non-psychoactive substance that found in female inflorescences. It works by binding to the CB1 receptor and CB2 receptor, reducing nausea and vomiting. Stimulate appetite, reduce pain. Non-psychoactive substances do not bind to the CB1 receptor, but have pain-relieving effects. Anti-inflammatory, anti-seizure, reduce spasticity, etc. (Im-iam et al., 2019 ; Petrakard, 2016 ; Chokevivat, 2019; Srisubat & Thanasittichai, 2019 ; Sawatphet, 2017) However, Cannabis is used so widely that it is a chemically synthesized drug. This allowed marijuana to be regulated under the Single Convention on Narcotic Drugs, 1961 (United Nation, 1979) which Thailand has participated in this convention. In which Thailand has enacted the Narcotic Law of 1979, according to Section 7, stipulating that narcotics are divided into 5 types, of which Cannabis is a category 5 drug. (Narcotic Act, 1979) However, cannabis has been used medicinally for more than 5,000 years as evidenced by different countries. Including in Thailand, the use of marijuana in the treatment of diseases has been recorded in many pharmacopoeia each Phra Narai scriptures, scriptures of Thai Traditional Medicine, textbook of medicinal stone inscriptions in Wat Phra Chetuphon Wimonmangkalaram (Wat Pho), textbook of medical welfare, old medical textbook. (Sripanidkulchai, 2019)

At present, many countries have focused on the use of marijuana for medical purposes. Therefore, Thailand has a policy on the use of marijuana for research and medicine. Therefore, the Narcotics Act (No.7) B.E. 2562 was announced in the Royal Gazette on February 18, 2019. This is an amnesty for marijuana possession, use for research. Between 19 February – 19 May 2019. In addition the government has encouraged the use of marijuana for medical purposes. The Ministry of Public Health has recommended that cannabis, both modern medicinal forms with dominant THC extracts, dominant CBD extracts, THC: CBD extracts and 16 Thai Traditional Medicine formulas be utilized for medical purposes in treating diseases or symptoms. Including nausea and vomiting caused by chemotherapy that standard treatment is ineffective, Intractable epilepsy and drug-resistance epilepsy, spasticity in patients with multiple sclerosis Nerve pain where other treatments have failed, Parkinson's disease, Alzheimer's disease, multiple sclerosis, anxiety disorders, patients requiring palliative care, terminal cancer patients. (Im-iam et al., 2019) including the Ministry of Public Health has an order for the hospital to establish a Medical Cannabis Clinic. At first, Sukhothai Province opened two clinics to provide services and give advice on the use of medical marijuana which has used cannabis in the form of modern medicine and Thai Traditional Medicine formulas to treat patients. Another 7 community hospitals operate as medical marijuana counseling clinics. Although the past performance is in accordance with the indicators of the Ministry of Public Health. But access to medical marijuana services is small. Including in order to operate efficiently. Therefore, the researcher is interested in developing an operation model for medical cannabis extract using public hospitals in Sukhothai Province, Thailand in order to operate systematically efficient including patients receiving a combination of Thai Traditional Medicine and Modern Medicine as well.

## Objective

To develop operation model for medical cannabis using of public hospitals in Sukhothai Province, Thailand.

## Methodology

This research was divided into 3 phases. Phase 1 was a study of situations and problem finding in the operation of medical marijuana use in public hospital in Sukhothai Province. Phase 2 is the development of a model for operating the medical cannabis use of government hospitals in Sukhothai Province. Using medical marijuana from public hospitals in Sukhothai by in-depth interviews with hospital directors and medical marijuana operators of government hospitals in Sukhothai Province. Phase 3 is a follow up on the results of the development of an operating model for medical marijuana use in government hospitals in Sukhothai Province. Data was collected for a period of 6 months from 6 October 1, 2019 to April 30, 2023.

### Population and Sample

9 Director of the hospital and 36 operator of medical marijuana use at public hospitals in Sukhothai Province as well as patients who come to receive services in medical marijuana use clinics of government hospitals in Sukhothai Province.

### Research Tools

In-depth interviews form for hospital directors and medical marijuana operators and group discussion questions for medical marijuana operators of public hospitals in Sukhothai Province and information record form for medical marijuana use clinics of public hospitals in Sukhothai Province.

### Data Collection

The data collection before trying the new format for 2 periods, October 2019 – September 2020 and after trying out the new format from October 2020 – September 2021 and October 2021 – September 2022 and October 2022 – April 2023 with an in-depth interview form for hospital directors and medical marijuana operators and group discussion questions for medical marijuana operators and a recording of medical marijuana use results of public hospitals in Sukhothai Province.

### Data Analysis

Content analysis for In-depth interviews form for hospital directors and medical marijuana operators and group discussion questions for medical marijuana operators and descriptive statistics were used for numbers and percentages.

## Results

When analyzing the problems in the medical marijuana use operation of public hospitals in Sukhothai Province, it is found that as for context, in year 2019, promoting the use of medical marijuana as an alternative treatment for patients in public hospitals was a new policy. In addition, marijuana is a category 5 drug under the Narcotics Act of 1979 make a plan setting a vision including the operational goals must be carefully and appropriately implemented by jointly planning as a team. As for input, it was found that there was a shortage of personnel with knowledge of using medical marijuana as an alternative treatment for patients in government hospitals. As well as a shortage of equipment including the lack of budget for the establishment of medical marijuana clinics to treat patients in public hospitals. As part of the process, it was found that the lack of guidelines and formalities for the implementation of medical marijuana use in public hospitals. As well as monitoring performance results, supervising, as well as reporting and reflecting performance results without clear guidelines

and records. Therefore, a model for operating medical marijuana use of public hospitals in Sukhothai Province has been developed. There are 5 main components as follow :

### **1. Policy Dimension**

Executives determine strategic plans, directions for short-term and long term goals in the operation of medical marijuana use as well as communicating the policy into practice. Including crating a team to analyze problems systematically and exchange knowledge to develop processes and work together.

### **2. Management Dimension**

Management consists of 4 main elements : personnel, budget, objects and processes which people management should start with having complete and accurate information with using technology and continuously develop the potential of personnel. Including having a mentoring team and a model area to learn. In terms of budget and material, there will be sufficient support when it is driven by the management. The items will include preparing tools. Various forms and guidelines to use in working. In addition, when there are personnel, budgets, materials that it will lead to the development of processes to suit the work according to the context of each area.

### **3. Integration Dimension**

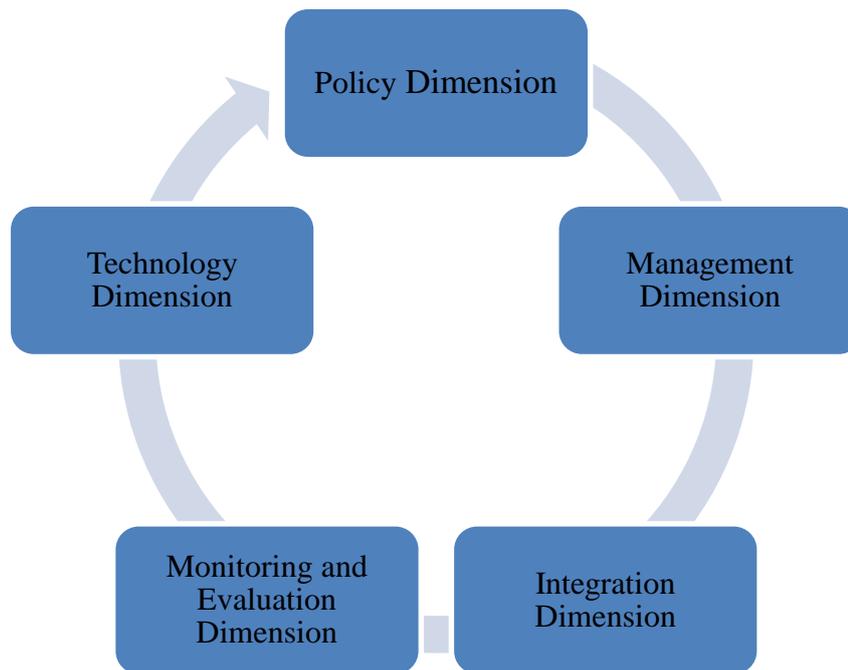
There is a collaboration with network partners from both the public and private sectors such as Provincial Administrative Organization, Sub-district Administrative Organization, Municipality, School, Temple, Public and Private hospitals, Store, Community leader, Village Health Volunteer by driving in the form of committees at the provincial, district, sub-district, and community levels in analyzing problems and finding joint solutions to suit the context of the area.

### **4. Monitoring and Evaluation Dimension**

It is continuously monitored and accessed using various databases and use technology to report results and reflects in real time. Including having a team of mentors at the provincial level and at the district level to follow up the operation and provide continuous consultation. In addition to find solutions together continuously. Including rewards as incentives for role models and role models to work that other areas can continue to learn.

### **5. Technology Dimension**

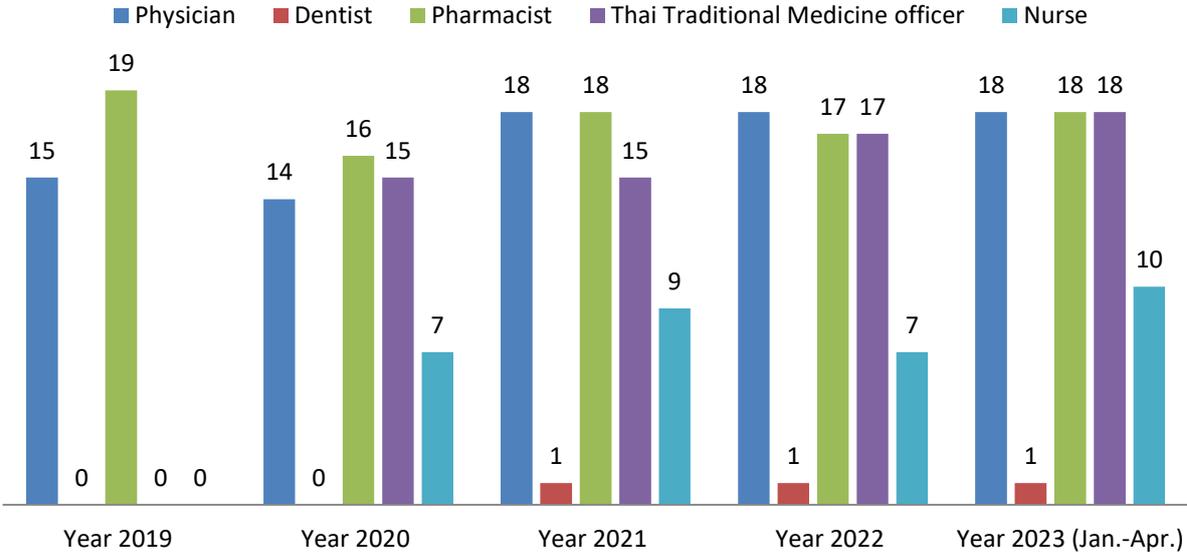
Technology is used to create a database of personnel, resources, budgets and materials as well as using multiple channels to communicate and receive complaints.



**Figure 1** The Operation Model Development for Medical Cannabis Using of Public Hospitals in Sukhothai Province, Thailand

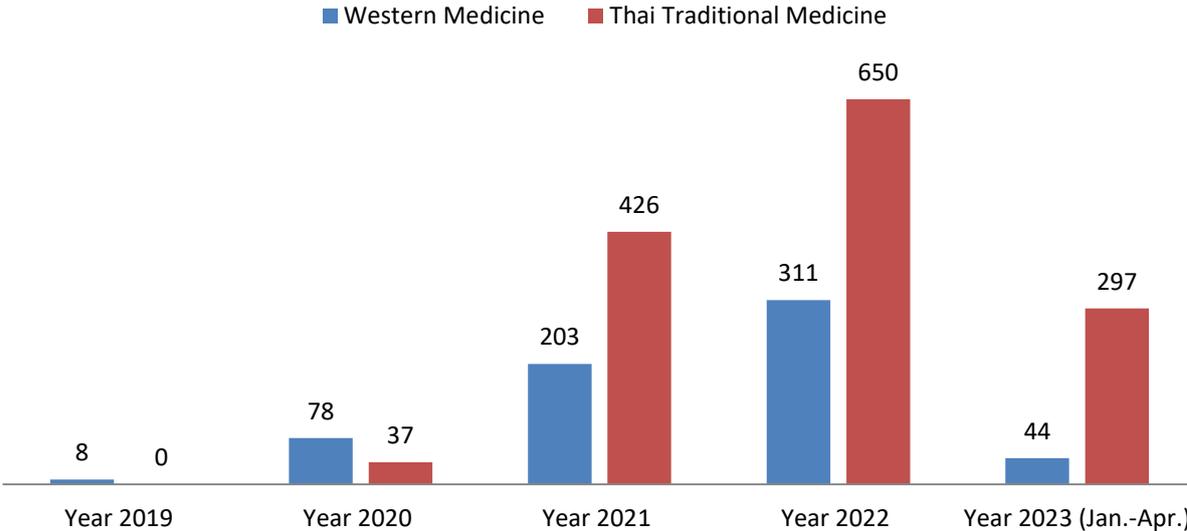
When developing an operating model for the use of medical marijuana in government hospital in Sukhothai Province. There are 5 main components, the results are as :

1. Personnel providing services in medical cannabis clinics of government hospitals in Sukhothai Province in year 2019 – 2023 (Jan. -Apr. ). It was found that personnel providing services in the medical marijuana clinics of government hospitals in Sukhothai Province include a variety of professions, such as doctors, dentists, pharmacists, Thai Traditional Medicine officers and nurses with the number of personnel attending training to serve more patients who come to receive services in medical marijuana clinics of government hospitals in Sukhothai Province. Details are shown in Figure 2.

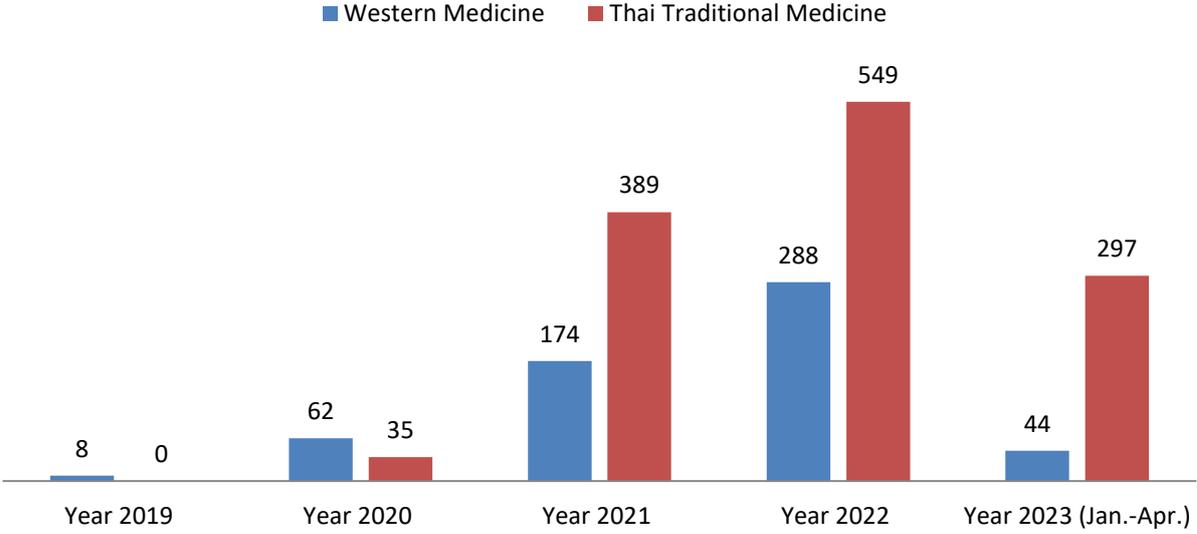


**Figure 2** Number of personnel in medical cannabis using of Public Hospitals in Sukhothai Province, Thailand

2. Patients receiving services in medical marijuana clinics of government hospitals in Sukhothai Province, it was found that in year 2019 – 2023 (Jan.-Apr.). Patients come to receive services and receive medicine in the medical marijuana clinic of a government hospital in Sukhothai Province. Both Western Medicine and Thai Traditional Medicine tend to increase every year. It was found that most patients came to receive Thai Traditional Medicine more than Western Medicine , increasing every year. Details are shown in Figure 3-4.

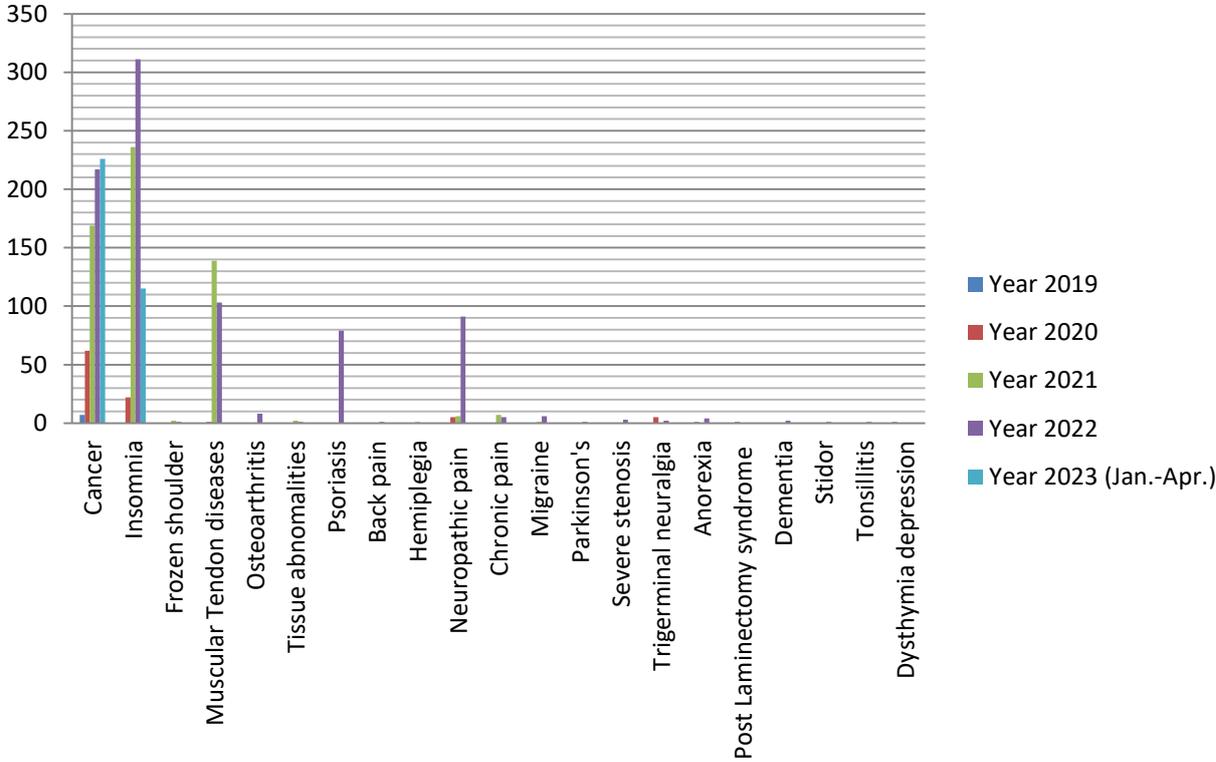


**Figure 3** Number of patients receiving services in medical cannabis clinics of Public Hospitals in Sukhothai province, Thailand



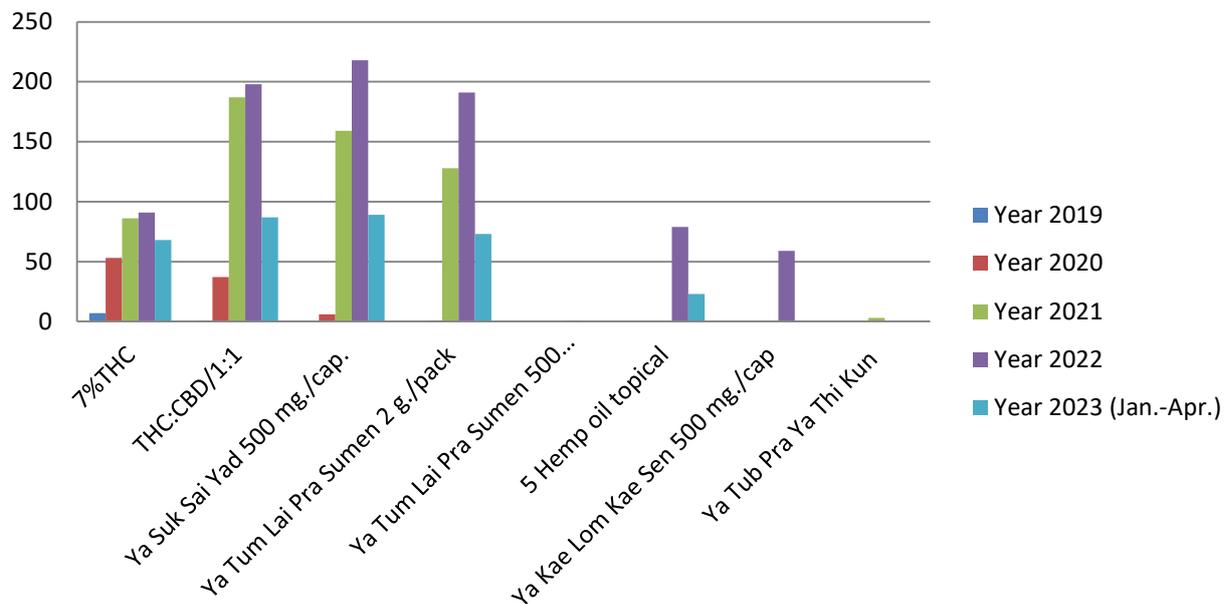
**Figure 4** Number of patients receiving the drug in medical cannabis clinics of Public Hospitals in Sukhothai Province, Thailand

3. Diseases and symptoms of patients receiving services in medical cannabis clinics of government hospitals in Sukhothai Province in year 2019 – 2023 (Jan.-Apr.). It was found that the top 5 diseases that patients come to receive services in medical marijuana clinics of government hospitals in Sukhothai Province include : Insomnia, Cancer, Muscular Tendon diseases, Neuropathic pain, Psoriasis. Details are shown in Figure 5.



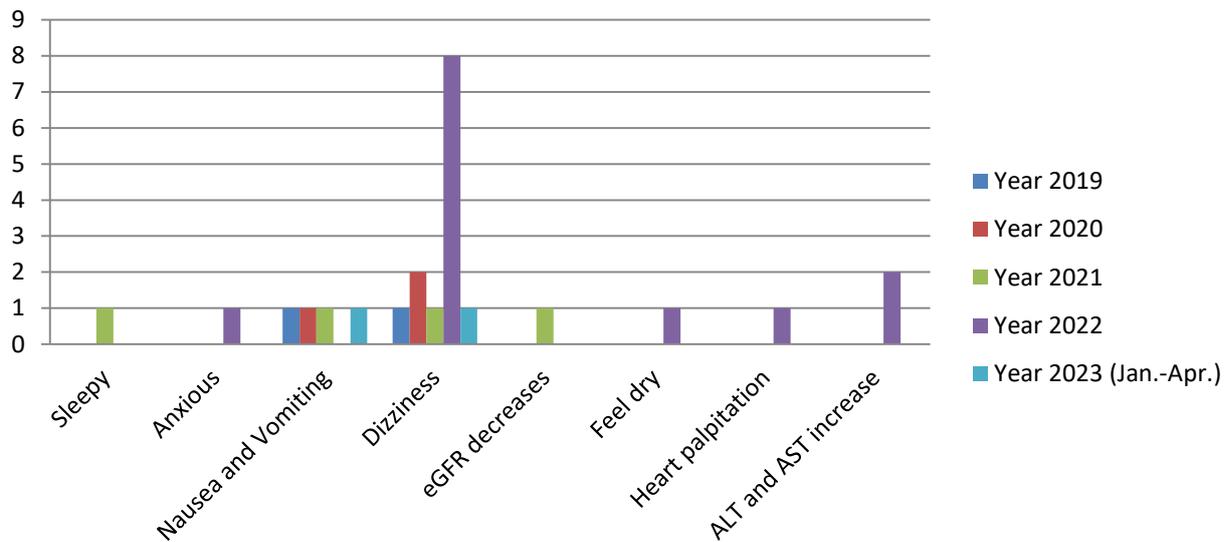
**Figure 5** Diseases and symptoms that patients receive services in medical cannabis clinics of Public Hospitals in Sukhothai Province, Thailand

4. Drugs used in the treatment of patients receiving services in medical marijuana clinics of public hospitals in Sukhothai Province in year 2019 – 2023 (Jan.-Apr.). It was found that most of the patients who received services in the medical marijuana clinics of public hospitals in Sukhothai Province received Thai Traditional Medicine to treat symptoms and diseases, consisting of Ya Suk Sai yad 500 mg./cap., Ya Tum Lai Pra Sumen 2 g./pack, 5 Hemp oil topical, Ya Kae Lom Kae Sen 500 mg. In addition, Western Medicine is used to treat patients, consisting of THC : CBD/ 1:1, 7% THC. Details are shown in Figure 6.



**Figure 6** Medicines used to treat patients receiving services in Medical cannabis clinic of Public Hospitals in Sukhothai province, Thailand

5. Side effects of drugs used to treat patients receiving services in the medical marijuana clinic of a government hospital in Sukhothai Province were found in year 2019 – 2023 (Jan.-Apr.). Patients who came to receive services in medical marijuana clinics of public hospitals in Sukhothai Province had side effects from using Western Medicine and Thai Traditional Medicine, consisting of : Dizziness, ALT and AST increase, Nausea and Vomiting, Sleepy, Anxious, eGFR decreases, Feel dry, Heart palpitation. Details are shown in Figure 7.



**Figure 7** Side effects of Drug used to treat patients receiving services at the Medical cannabis clinic of Public Hospitals in Sukhothai province, Thailand

## Discussions

Cannabis is a plant with the scientific name *Cannabis sativa* L. It has psychoactive effects. It is used for medical and recreational purposes. The psychotropic substance is Tetrahydrocannabinol (THC) (Chokevivat, 2019). In Thailand, marijuana is used medically for the benefit of treating patients based on evidence-based medicine (Nonthasawadri, 2020), safety, effectiveness and equity. By requiring that marijuana be used in the treatment of 3 groups of patients, consisting of 1) groups of diseases/conditions that benefit, with clear research findings, such as difficult-to-treat epilepsy that is resistant to medication Chemotherapy-induced nausea and vomiting that standard treatments are ineffective spasticity in patients with multiple sclerosis (Saijanket et al., 2020), intractable neuropathic pain. 2) Groups of diseases/conditions that may be beneficial in controlling symptoms. More information should be available regarding its efficiency and safety such as Parkinson's disease, Alzheimer's disease, demyelinating disease, generalized anxiety disorder, palliative care patients, terminal cancer patients. 3) Groups of diseases/conditions that may benefit that require in vitro and animal research studies before human research studies (Akkasin, 2019). In Sukhothai Province, medical marijuana has been used as an alternative treatment for patients. Patients come to receive services and receive medicine in the medical marijuana clinic of a government hospital in Sukhothai Province. Both Western Medicine and Thai Traditional Medicine tend to increase every year. The top 5 diseases that patients come to receive services in medical marijuana clinics of government hospitals include: Insomnia, Cancer, Muscular Tendon diseases, Neuropathic pain, Psoriasis that used in the treatment of Thai Traditional Medicine to treat symptoms and diseases, consisting of Ya Suk Sai yad 500 mg./cap., Ya Tum Lai Pra Sumen 2 g./pack, 5 Hemp oil topical, Ya Kae Lom Kae Sen 500 mg. In addition, Western Medicine is used to treat patients, consisting of THC : CBD/ 1:1, 7% THC. However, patients who came to receive services in medical marijuana clinics had side effects from using Western Medicine and Thai Traditional Medicine, consisting of: Dizziness, ALT and AST

increase, Nausea and Vomiting, Sleepy, Anxious, eGFR decreases, Feel dry, Heart palpitation. However, medical marijuana is useful as an alternative treatment for patients and helps restore knowledge in Thai Traditional Medicine and recipes. It also reduces the cost of the country and patients.

### **Conclusion and suggestions**

This research was divided into 3 phases. Phase 1 was a study of situations and problem finding in the operation of medical marijuana use in public hospital in Sukhothai Province. Phase 2 is the development of a model for operating the medical cannabis use of government hospitals in Sukhothai Province. Using medical marijuana from public hospitals in Sukhothai by in-depth interviews with hospital directors and medical marijuana operators of government hospitals in Sukhothai Province. Phase 3 is a follow up on the results of the development of an operating model for medical marijuana use in government hospitals in Sukhothai Province. Data was collected for a period of 6 months from 6 October 1, 2019 to April 30, 2023. When developing an operating model for the use of medical marijuana in government hospital in Sukhothai Province. There are 5 main components, consisting of Policy Dimension, Management Dimension, Integration Dimension, Monitoring and Evaluation Dimension, Technology Dimension.

The results are personnel providing services in medical cannabis clinics of government hospitals in Sukhothai Province in year 2019 – 2023 (Jan.-Apr.). It was found that personnel providing services in the medical marijuana clinics of government hospitals in Sukhothai Province include a variety of professions, such as doctors, dentists, pharmacists, Thai Traditional Medicine officers and nurses with the number of personnel attending training to serve more patients who come to receive services in medical marijuana clinics of government hospitals in Sukhothai Province. Patients come to receive services and receive medicine in the medical marijuana clinic of a government hospital in Sukhothai Province. Both Western Medicine and Thai Traditional Medicine tend to increase every year. The top 5 diseases that patients come to receive services in medical marijuana clinics of government hospitals include : Insomnia, Cancer, Muscular Tendon diseases, Neuropathic pain, Psoriasis that used in the treatment of Thai Traditional Medicine to treat symptoms and diseases, consisting of Ya Suk Sai yad 500 mg./cap., Ya Tum Lai Pra Sumen 2 g./pack, 5 Hemp oil topical, Ya Kae Lom Kae Sen 500 mg. In addition, Western Medicine is used to treat patients, consisting of THC : CBD/ 1:1, 7% THC. However, patients who came to receive services in medical marijuana clinics had side effects from using Western Medicine and Thai Traditional Medicine, consisting of : Dizziness, ALT and AST increase, Nausea and Vomiting, Sleepy, Anxious, eGFR decreases, Feel dry, Heart palpitation. Therefore the development of operations is systematic and efficient. Including patients receiving a combination of Thai Traditional Medicine and Western Medicine that work together as a multidisciplinary team to use cannabis as an alternative treatment for patients. Taking into account efficiency and safety together and continued monitoring of symptoms and side effects in the treatment of patients at the hospital and at the patient's home.

## New knowledge and the effects on society and communities

The information obtained is used in joint planning between hospital staff, public health and community networks to educate people about the use of medical marijuana as an alternative treatment for patients. Including receiving services at the medical marijuana clinic of a government hospital in Sukhothai Province as well as educating patients and the public about the side effects of medical marijuana use. Including working together with network partners and communities to continuously monitor treatment and side effects in treating patients both in the hospital and at home.

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