

**Research project proposal Apply for research funding from the Health
Systems Research Institute (NHRI).**

Fiscal year 2027

**1. Project name in English: Kidney Replacement Therapy Policy of Universal Care
Scheme in Thailand: Lessons Learned and The Way Forward**

Research keywords

Dialysis, peritoneal dialysis, hemodialysis, policy, UCBP

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2. Consistency with the research plan

Research plan/ OKR	Problem / Research Issue
<input type="checkbox"/> 1. Medicine system, medical supplies Program 9 OKR: O2.9a KR 2.9a1-a2	1.1 <input type="checkbox"/> Study the drug security situation and the national drug expenditure account 1.2 <input type="checkbox"/> The feasibility of implementing a drug pricing policy in Thailand from the perspective of stakeholders and estimating the resulting impacts. 1.3 <input type="checkbox"/> Study the cost-effectiveness of medicines and the systematic management of the National List of Essential Medicines. 1.4 <input type="checkbox"/> Study the situation and conduct operational research on rational drug use at the national level. 1.5 <input type="checkbox"/> Study the effectiveness of medical cannabis products and monitor and monitor the implementation and evaluate the impact of medical cannabis policies.
<input type="checkbox"/> 2. Health workforce	2.1 <input type="checkbox"/> Research and develop proposals for management and workforce development in the overall health system.

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Research plan/ OKR	Problem / Research Issue
Program 9 OKR: O2.9a KR 2.9a1-a2	<p>2.2 <input type="checkbox"/> Research and develop policy proposals to set national health workforce information standards that will be used jointly by both public and private agencies in designing appropriate health workforce systems.</p> <p>2.3 <input type="checkbox"/> Research and develop proposals to promote educational institutions, professional councils, the Ministry of Public Health. and various service units In the public and private sectors Create a systematic digital personnel database.</p> <p>2.4 <input type="checkbox"/> Research and develop proposals for directions and operational policies regarding primary, secondary, and tertiary health workforce to provide a modern health system. Efficient and quality</p> <p>2.5 <input type="checkbox"/> Research systematic design to support national health reform in the area of health workforce.</p>
<p><input checked="" type="checkbox"/> 3. Health service system</p> Program 9 OKR: O2.9a KR 2.9a1-a2	<p>3.1 <input checked="" type="checkbox"/> Research and develop policy proposals to increase the capacity of primary, secondary, tertiary and support systems in health promotion and increase the efficiency of management mechanisms.</p> <p>3.2 <input type="checkbox"/> Research and develop public policy proposals regarding the development of primary care systems. Community health care Both communicable diseases and non-communicable diseases</p> <p>3.3 <input type="checkbox"/> Research and develop to determine directions and policies for primary health system operations within the Primary Health Act.</p> <p>3.4 <input type="checkbox"/> Research and develop guidelines for organizing health services (Model development) according to the context of large metropolitan areas. Urban areas, rural areas, Bangkok areas appropriate to the current context</p> <p>3.5 <input type="checkbox"/> Research and develop guidelines for designing primary, secondary, and tertiary health service systems to support Pandemic , such as strategies for rapid response in new types of services at both the crisis level, referral system, and primary service system. in a jointly targeted geographic area and plans to prepare for field hospitals in case of necessity.</p>

Research plan/ OKR	Problem / Research Issue
<input type="checkbox"/> 4. Health information system Program 9 OKR: O2.9a KR 2.9a1-a2	<input type="checkbox"/> Development of health information systems to create a surveillance system Follow up and prevent disease and increase the effectiveness of the medical service system
<input type="checkbox"/> 5. Finance and health Program 9 OKR: O2.9a KR 2.9a1-a2	5.1 <input type="checkbox"/> Evaluate the value for money of health services and technology to develop health insurance benefit packages. 5.2 <input type="checkbox"/> Research to test health promotion, prevention, and treatment programs. It uses a payment mechanism to incentivize service providers and citizens who focus on results.
<input type="checkbox"/> 6. Health care system Program 9 OKR: O2.9a KR 2.9a1-a2	6.1 <input type="checkbox"/> Research to develop policy proposals for reforming the public health emergency management system. 6.2 <input type="checkbox"/> Research to develop policy proposals in policy formulation to increase the efficiency and effectiveness of health promotion. Health literacy Prevention and care and treatment of non-communicable diseases for citizens and patients 6.3 <input type="checkbox"/> Research to synthesize policies for providing health services to the elderly regarding care. Home / community medical care and self-care in innovative primary health care systems 6.4 <input type="checkbox"/> Research to synthesize policies for operating health insurance and related funds to ensure unity. Integration Fair thorough Sufficiency and sustainability in finance and finance 6.5 <input type="checkbox"/> Research to synthesize health district reform policies to have an integrated and flexible management system. and joint responsibility for health between agencies and localities
<input type="checkbox"/> 7. Specific target groups (issue 7.1)	7.1 <input type="checkbox"/> Research and prepare to support entering an aging society or solve aging society problems.

Research plan/ OKR	Problem / Research Issue
Program 8 OKR: O2.8 KR 2.8.1, 2.8.2, 2.8.4 Issue 7.2-7.4 Program 9 OKR: O2.9a KR 2.9a1-a2	<p>7.2 <input type="checkbox"/> Research for the development of measures, systems, or policies to improve the health of vulnerable groups. Vulnerable groups include children, teenagers, people with disabilities, and those at risk for mental health problems. that require specific measures, systems, or policies for health development The required research characteristics are testing, evaluating, and developing measures, systems, and related policies. Research results must be able to be extended effectively. In the case of children and teenagers There is a need for research on mental health development issues. In the case of people with disabilities, there is a need for research on prevention, treatment, rehabilitation, as well as management of environmental factors that affect health.</p> <p>7.3 <input type="checkbox"/> Research to develop and end tuberculosis. Including research and development of information system integration / development of the national tuberculosis database, research to develop control services and patient services. Tuberculosis and latent tuberculosis clinical research (Diagnosis and testing for susceptibility to drugs to treat drug-resistant tuberculosis patients / appropriate treatment regimens Other clinical research that will affect the end of tuberculosis) Study of drug-resistant tuberculosis bacteria, both genotypic and phenotypic , research and development of latent tuberculosis diagnosis and tuberculosis diagnosis</p> <p>7.4 <input type="checkbox"/> Research and develop models/guidelines for control, promotion, prevention and treatment of diseases caused by natural environmental problems. and other infectious diseases Including research on environmental health Together with promoting community capacity to create a self-surveillance system.</p>

Goal (Objective) : Improving the health security of the country to be ready for national epidemics and emerging diseases. Efficiently and effectively by using research results, knowledge, technology and innovation. (You can answer more than 1 question)

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<p>Important achievements</p>	<p><input checked="" type="checkbox"/> KR 1 P10: Percentage of national and / or regional integrated health systems that use modern technology and innovation. which increases efficiency Effectiveness in dealing with national epidemics and emerging diseases especially access to vaccines and medicines for emerging diseases. (Increased by 80 percent)</p> <p>Please specify whether the National Health Security Office (NHSO) is able to provide reimbursement for services to the public and not be financially bankrupt for kidney replacement therapy services in Thailand.</p>
	<p><input type="checkbox"/> KR 2 P10: Number of institutes/research centers in higher education institutions and government and private agencies with special expertise in epidemics national level and emerging diseases There is an increase in the number and distributed in every region (increased to 25 locations)</p> <p>Please specify.....</p> <p>.....</p>
	<p><input type="checkbox"/> KR 3 P10: number of technologies and modern innovation to increase efficiency Effectiveness in dealing with national epidemics and emerging diseases including technology that supports access to services that are used and people have access to services that are used and people can access the service (increase quantity 100 pieces)</p> <p>Please specify.....</p> <p>.....</p>
	<p><input type="checkbox"/> KR 4 P10: Number of policy recommendations, measures, and management of the system for strengthening national health security using developmental evaluation research at the national and area levels. (Increase the number by 1 set per year)</p> <p>Please specify.....Increase the number by 1 project per year.....</p> <p>.....</p>
	<p><input type="checkbox"/> KR 5 P10: Number of people receiving services from national and area integrated health systems. which uses modern technology and innovation which increases efficiency Effectiveness in dealing with epidemics national level and emerging diseases (Increase in number by 10,000,000 people)</p>

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3. Project details

3.1. Principles and reasons

Chronic kidney disease (CKD) is a life-threatening disease for many people. People suffering from such diseases need to undergo some form of kidney replacement therapy in order to live a long life. (1, 2) In 2019, it is estimated that 1.4 million people will die from chronic kidney disease worldwide. (3) In addition, the pathology of the disease causes the patient to receive kidney replacement therapy for the rest of their life (in the case that the patient does not receive a kidney transplant) and the costs are quite high. If patients and their families do not have sufficient financial means, this can lead to financial bankruptcy of the household (4) . It is debated at the national level that universal health coverage may not achieve one of the main goals of health system development. Sustainable If kidney replacement therapy services are not included as a benefit to the people

Thailand has begun to provide health benefits to its citizens. Under the National Health Insurance System since 2002 , it covers more than 70 percent of the population , in addition to medical treatment rights for civil servants. State enterprises and social security (5) which at that time Thailand is one of the few low- and middle-income countries. (lower-middle-income countries (LMIC)) that began to provide national health insurance rights to citizens Even at that time the country was just emerging from the 1997 economic crisis . (6) Yet treatment rights for chronic kidney disease are not yet included in the benefits package. Due to concerns about the fiscal stability of the health fund and equality of access to services This is because in 1998 there used to be reimbursement for services for hemodialysis using hemodialysis machines. (Hemodialysis; HD) and peritoneal dialysis (PD) in full for patients with end -stage kidney disease (ESKD) who use civil service rights and social security (7) means that patients outside of these rights will not receive health protection As a result, they have to bear the burden of treatment costs themselves (8, 9) . In addition, most patients under national health insurance rights are among those with low incomes and have a relatively high prevalence of chronic kidney disease (10).

Therefore, in order to cope with the pressure that the public wants to include the right to kidney replacement therapy as a benefit, the topic of the said benefit package has been proposed into the national health insurance system. by various stakeholders such as professional councils, non-profit organizations, academics, patient groups, and kidney

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replacement therapy providers (5). A study was conducted to analyze the economic worthiness of kidney replacement therapy services and various costs. The cost that patients have to pay for treatment (11, 12) is collectively called the benefit package development process. This is considered to be one of the first development processes in Thailand that used a large amount of academic evidence to support it until it became a benefit package in 2008 under the announcement " Peritoneal dialysis policy is the first option. " (PD First Policy) (10, 13) ESKD patients who request PD services as their first choice will not incur treatment costs. This covers surgery to place a peritoneal lavage tube, dialysis fluid, and red blood cell stimulating drugs. (Erythropoietin; EPO) treatment monitoring Treatment of complications caused by PD and temporary hemodialysis (temporary HD) in cases where the patient is unable to perform PD . Patient selection is considered according to the criteria of the Thai Kidney Association. If any patient cannot undergo PD due to clinical contraindications Doctors will also refer patients to HD services free of charge. On the other hand, if any patient does not wish to do PD , it is the first choice without clinical contraindications. Patients are responsible for the full cost of HD treatment themselves (7).

which after the announcement of the policy There are an increasing number of new patients receiving kidney replacement therapy every year. (14) Especially patients under the rights of national health insurance. Before announcing the policy There were 1,198 peritoneal dialysis patients . and after starting the policy The number increased to 24,244 . In the year 2 0 1 8 (15) ADDIN EN.CITE <EndNote><Cite><Year>2018</Year><RecNum>57</RecNum><DisplayText>(15)</DisplayText><record><rec-number>57</rec-number><foreign-keys><key app="EN" db-id="rzd2eezaa9f0rme0fs75faa0vetptvrfewap" timestamp="1707023479">57</key></foreign-keys><ref-type name="Web Page">12</ref-type><contributors></contributors><titles><title>Six organizations announce success in "10 years of peritoneal dialysis policy", helping patients access treatment</title></titles><dates><year>2018</year><pub-dates><date>22 June 2018,</date></pub-dates></dates><publisher>The Coverage</publisher><urls><related-urls><url>https://www.thecoverage.info/news/content/259</url></related-urls></urls><custom2>cited 2 February 2024</custom2></record></Cite></EndNote>

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After Thailand began the policy of peritoneal dialysis as the first option. Many sectors work together to drive policy quickly. Brings motivation to both recipients and service providers. Peritoneal dialysis solutions (PD Solutions) are purchased nationally. There is cooperation between training centers. Professional associations and councils including non-profit organizations To increase the ability to care for patients In addition, there has been an increase in supply in terms of the number of medical personnel and peritoneal dialysis centers. It also encourages the creation of kidney disease patient clubs within the local area (5). It can be seen that the said policy has been very successful. It helps increase access to kidney replacement therapy services quickly (16), results in better outcomes for patients (16, 17) , and is widely accepted. (7, 13) Low- and middle-income countries (LMICs) such as Indonesia and the Philippines have studied cost-effectiveness. (cost-effectiveness) of kidney replacement therapy services and other countries such as India and Kenya. Efforts are being made to learn from Thailand's experience in implementing such kidney replacement therapy policies (18, 19).

Until the year 2022, the government has improved the kidney replacement therapy policy. It is based on patient-centered principles combined with shared decision-making between doctors and patients. Under the concept of participatory decision-making (Shared-decision making model) (20) This new policy benefits patients by being able to reimburse treatment costs regardless of which kidney replacement therapy they choose. (20) Patients have more flexibility in decision-making. However Patients may incur additional expenses of approximately 28,000 baht or 811 ¹USD per person per year for those who choose HD over PD due to having to travel back and forth to the hospital more frequently (5). It can be seen that the latest policy sends It has a considerable impact in determining the increased cost burden on the system as the cost of HD is higher than PD.

Now, just two years after the policy change, it has been found that there has been an increase in end-stage kidney failure patients entering the kidney replacement therapy system. Kidney failure patients who are on dialysis and at that time are paying out-of-pocket are entering the kidney replacement therapy system. Disbursement system NHSO numbering more than six thousand people. Representing a budget impact of 720 million baht per year. It turned out that at present In December 2023, there were a number of new kidney failure

¹ 1 USD It is equivalent to 35 baht.

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patients entering the dialysis system. NHSO . The number increased to more than 24,000 people. Resulting in a burden of expenses on NHSO . increased by more than 2 billion baht per year and has a tendency to gradually increase This corresponds to the increase in the number of private dialysis service units in major cities. From the above reflection , The budget of the Health Insurance Fund must be reallocated to the shortfall in the treatment fund for patients with end-stage renal disease. due to insufficient Because the budget has expenses. The pay is quite high. For this reason, the Kidney Association of Thailand The International Society for Nephrology and the National Health Security Office therefore proposed a study to draw lessons from the policy process and study the impact of the two changes in Thailand's kidney replacement therapy policy . To know the positive and negative impacts that have occurred. This will lead to solving problems and providing lessons for the National Health Insurance system . Hospitals and kidney replacement therapy service units , including low- and middle-income countries. who are struggling to find funds for kidney replacement therapy for the people which is an expensive treatment Patients must receive treatment for the rest of their lives in order to live a long life (21).

3.2.objective

The overall objectives of the study are Lessons learned from Thailand's kidney replacement therapy policy from 2008 after the announcement of the policy " Peritoneal dialysis as the first choice " (PD First Policy) until the year 2022 when it was adjusted to Policy on “ elective dialysis under participatory decision making ” . This study will provide a better understanding of the environment and operation of kidney replacement therapy policy in Thailand. It can be referenced for future policy analysis for Thailand and other low- and middle-income countries. This study will help shed light on what supports and hinders the provision of kidney replacement therapy services in National health insurance rights The main objectives include:

- 1) To study the policy process of kidney replacement therapy services in Thailand.
- 2) To study the context and influence of stakeholders involved in kidney replacement therapy policy in Thailand.
- 3) To study the impact of kidney replacement therapy policy on patients. medical service provider and health system

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- 4) Compare the context and impact of kidney replacement therapy policies in other countries with a context similar to Thailand.

3.3.literature review

Access to kidney replacement therapy abroad varies depending on many factors, including: Government policy Implementing policies for people in the community (22) internal structure and economic status of each country (23) For example: in Singapore Hemodialysis services account for approximately 87 percent of all kidney replacement therapy provided by various voluntary organizations. and the private sector While peritoneal dialysis is a service provided by the government sector. The cost of kidney replacement therapy is jointly paid by the government and the patient. Additionally, funding may be received from various foundations. such as National Kidney Foundation and Kidney Replacement Therapy Foundation It depends on the patient's income and financial status. (24) in reverse Hong Kong Special Administrative Region of the People's Republic of China It is considered a city with high incomes. There is a policy of peritoneal dialysis as the first option, which is well known. The majority (75 percent) of the city's dialysis patients choose to use government-organized peritoneal dialysis (24) . Hong Kong also supports home peritoneal dialysis . There is academic evidence showing that peritoneal dialysis has better results and a higher number of survivors, and the cost of treatment is less compared to Hemodialysis using hemodialysis machines in hospitals significantly (2)

In low- and middle-income countries We can see the diversity in choosing kidney replacement therapy methods. For example: Mexico People who are covered by government health insurance often Choose to receive service peritoneal dialysis Because the cost of treatment is lower Although the number of patients Peritoneal dialysis will decrease in 2018. 1999 - 2010 due to complications of the disease that caused patients to change methods of kidney replacement therapy (25) in the Philippines The main health insurance system covers approximately 58 percent of hemodialysis costs per year . Meanwhile, the remaining expenses must be borne by the patient themselves. on the contrary Indonesia Patients can freely choose kidney replacement therapy under the health insurance system. However , the ability to support Kidney replacement therapy services in the country remain low . As a result, few patients still have access to kidney replacement therapy . (23) In India Hemodialysis using

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hemodialysis machines is more popular . peritoneal dialysis The patient must pay their own expenses. (13)

From the evidence mentioned above. It will be clearly seen that Different countries have different considerations for kidney replacement therapy. Due to the scarcity of different resources Understanding each country's strategy Reasons used in consideration Obstacles that hinder operations and long-term goals It will help Thailand to develop a better kidney replacement therapy policy.

In Thailand , a study was found that discussed the kidney replacement therapy policy by Piyathida Jungsamran and Wich Kasemsap (2017) who discussed the challenges of Thailand in meeting the needs of patients with end-stage kidney disease (5) by stated that to successfully implement the peritoneal dialysis policy as the first choice (PD First policy) in Thailand requires cooperation from many sectors. whether it be medical personnel, patients, and civil society Let's help increase awareness and support. Including cooperating with policy makers until a sustainable solution is reached for kidney disease patients. There are four main strategies to drive the kidney replacement therapy process in practice in line with the said policy announcement: 1) cost control Whether it is national price negotiations and controlling price competition in the industrial sector after the policy is implemented, 2) an incentive plan to drive the health care system, 3) increasing the number and capacity of peritoneal dialysis centers, and 4) Promote peritoneal dialysis centers Networks or patient support groups have been created at the local level.

In addition, a study was found that discussed the financial disaster of chronic kidney disease hidden under the rights of universal health coverage and the PD First policy of Thailand by Pornpen Sangthawan and colleagues (2022). (26) The study was conducted in a cross-sectional manner. (cross-sectional study) to evaluate the financial burden of patients beyond the portion that can be reimbursed from treatment rights among 1,224 patients with stage 3 chronic kidney disease (CKD) who require kidney replacement therapy from a tertiary hospital. All regions throughout Thailand, totaling 11 locations, were studied by interviewing patients, caregivers, and reviewing medical documents. Social economic data such as income, consumption expenditures and all household expenses for 1 month before the interview Collect information on expenses that patients have to pay themselves. (Out-of-

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pocket expenditures) during the 6 months prior to the interview Break down the data into medical and non-medical expenses. The medical expenses that the patient pays himself will include co-pays for medical expenses that are not covered by treatment rights. The results of the study are interesting that patients under national health insurance rights who have to bear the costs themselves are: Group of patients on hemodialysis using hemodialysis machines This is twice as common as in peritoneal dialysis patients. and nearly six times as much compared to patients with stage 3-4 CKD . It can be seen that HD is associated with significantly more financial catastrophe and medical costs than PD and inpatient treatment . Period before kidney replacement therapy Travel expenses are the main driver of this financial disaster . In summary, even though there is coverage for kidney replacement therapy under National Health Insurance rights. But costs beyond the portion that can be reimbursed from treatment rights among chronic kidney disease patients remain high. And the limit is still shockingly high among the poor. Therefore, the PD First policy is a policy model for low- and middle-income countries. However, strategies to minimize financial distress should be developed. Especially the poor group

Reporting results from the implementation of the peritoneal dialysis policy as the first choice in Thailand after the implementation of the policy. It is interesting that Changes were found in many aspects of the public health system , such as a change in the incidence of new patients. Access to kidney replacement therapy services The financial burden is felt by both policy makers and patients. Including the need for manpower and medical service units to meet the demand for kidney replacement therapy according to the policy announcement of the Ministry of Public Health.

(Details of the literature review comparing kidney replacement treatment policies under the universal health insurance system Show more in the attached document. 1 Comparing Thai UHC's kidney dialysis policies issued in 2008 and 2022 in the form of an English document for information to the Committee for Learning about Kidney Replacement Therapy Policy in Thailand)

3.4. Research Conceptual Framework

In this study, “ policy ” refers to practices that affect institutions, organizations, services, and funding management in the health system (27) . The researcher will apply a variety of

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processes to achieve the objectives. which is one of the main objectives The researcher will conduct a policy analysis based on the policy reforms of the Reich. (1994) (28) which is policy reform through a fundamental political process that results in the development, formulation, and implementation of policy. In addition, factors affecting policy reform were added by Walt and Gilson (1994) (29) Under the conceptual framework shown in Figure 1, to analyze the relationship between actors , context , content , and processes necessary for policy reform (29).

Walt and Gilson 's framework to the policy process. Details have been added from the application of Anderson et al.'s (1984) framework (30). According to Figure 2, according to the aforementioned conceptual framework, the researcher will survey the policy process in two rounds. The first round is the PD First policy process, while the second round is the kidney replacement therapy policy process using participatory decision-making (current policy 2022), where the first round of studies will discuss how kidney replacement therapy can be included in the policy agenda. This will be followed by the determination of options and the implementation of the PD First policy . The implementation of the policy will be evaluated under the kidney replacement therapy framework of International Society of Nephrology (ISN) that specifies guidelines for planning and providing kidney replacement therapy services, such as organizing human resources. infrastructure, service provision, and quality assurance, etc. (31) after the operation process The researcher will draw on several studies that address the issue of evaluating the PD First policy and how the policy existed for more than 14 years before it was changed to the current policy (B.E. 2022) Let's have a discussion. All of the aforementioned processes will be studied in the same way as the current policy of selecting kidney replacement therapy through participatory decision-making. Whether it is the cause of the policy transition, the objectives, the process of starting the policy until it leads to development. The role of policy towards policy responders at each level What are the effects of the policy after one year of implementation?

The political and socio-economic context of Thailand is explained. Including the roles and responsibilities of policy makers that vary in each step of the policy process. Contextual factors, which refer to pre-existing conditions when a policy process takes place, determine opportunities and constraints for policymakers in prioritizing issues (32). Stakeholder analysis will Makes it possible to understand the actions of policy makers How do individuals and

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organizations influence policy decisions? Analyze the use of power in policy making. This is an issue that is rarely discussed in low- and middle-income countries. It is an important factor that leads to policy change (33, 34) . Therefore, this study will study the use of power by policy makers through evaluating intentions, interests, positions, and use of various resources, including considering factors. There are other policy implications as well (35, 36) , such as empirical evidence, values, and experiences, etc., that will shape the kidney replacement therapy policy in Thailand (35, 36).

A comparative analysis was performed between the two kidney replacement therapy policies. They will compare and show the similarities and differences of the policies. Factors and obstacles in policy formulation Bringing together the exchange of diverse perspectives from practitioners to international academics. To learn from Thailand's experience and apply it to low- and middle-income countries.

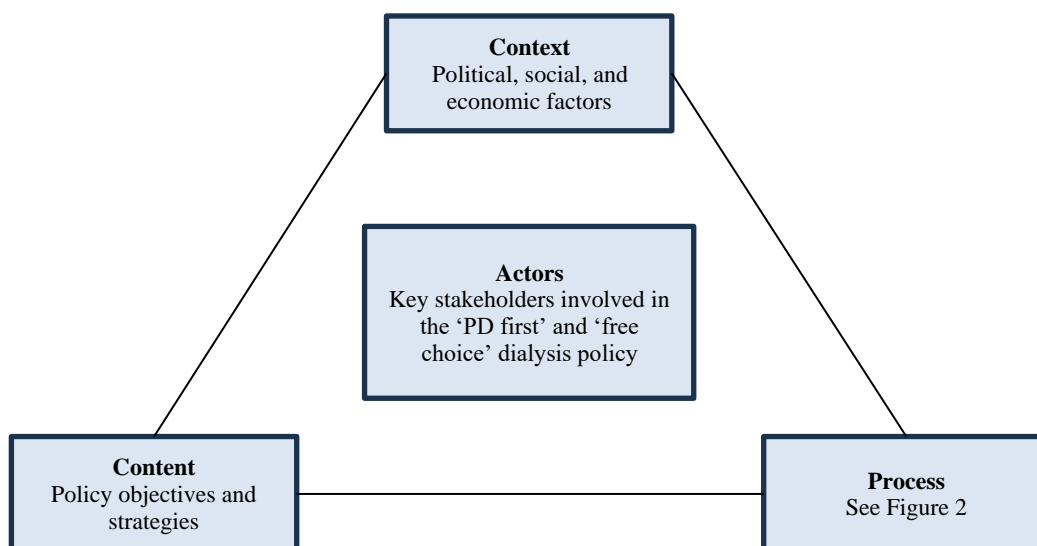


Figure 1 The policy triangle framework (29)

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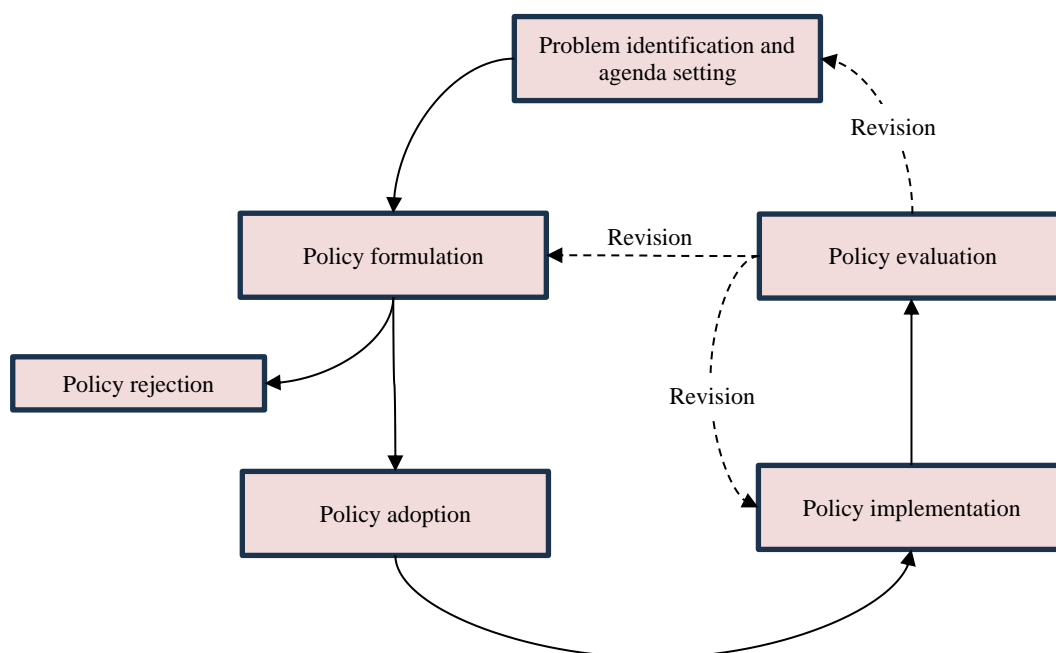


Figure 2 The policy process framework (30)

3.5. Research methods and operations

This study is a mixed methods research design, both qualitative (qualitative approach) and quantitative. (quantitative approach) by dividing the research method into 4 parts as follows:

3.5.1 Part 1: Rapid review of literature

To answer all 4 objectives, the researcher will review literature both in Thailand and abroad. Including low- and middle-income countries. of policy methods (policy formulation, implementation, and evaluation) and who are the stakeholders At what stages of the policy are those groups involved? Including what is the role? The review process is set out in 4 steps, consisting of determining the scope and issues of the review. Defining the data source Searching for documents Then assess the quality of the data and conduct qualitative analysis and synthesis using a phenomenological research approach. (phenomenology) data are coded (coding) and key points are determined and analyzed and synthesized for connections (thematic analysis) together with data obtained from interviews. group discussion and findings from quantitative studies

Criteria for selecting academic articles (eligibility criteria)

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1) Type of database: electronic database. Specific journals (Grey literature) Policy announcement documents official document and reports of various meetings or workshops

2) The search language is Thai and English

3) The topic of the article must be relevant to kidney replacement therapy policy. Both policy processes such as planning or prioritization Determination of policy formats, implementation, and study of the worthiness of the policy. and monitoring and evaluation Including relevant stakeholders

4) The period of publication or dissemination is the period 2007-2023 .

3.5.2 Part 2: In-depth interviews and focus group discussions

(1) Research design

To answer objectives 1-3 , the researcher will collect qualitative data using a phenomenological research approach, with data collected using in-depth interviews and group discussions . focus group discussion) on key players and stakeholders from various sectors involved in kidney replacement therapy policy in Thailand.

(2) in-depth interview

The researcher selects a group of informants for in-depth interviews using the group selection method. Reference sample of 20-30 people and experts (Snowball sampling) It covers 6 groups of key players and stakeholders. namely 1) National policy makers 2) Local level policy makers such as provincial level, district level, etc. 3) personnel providing kidney replacement therapy such as doctors, nurses, etc. 4) representatives of private companies Both from companies that manufacture and distribute equipment or materials for kidney replacement therapy. and private kidney replacement therapy service units 5) patient representatives and 6) academics

In-depth interviews were conducted using in-depth interview questions. The interviews were conducted in the form of face-to-face interviews or remote data collection via an online system at the convenience of the informants. The interview lasted approximately 60-90 minutes . Before proceeding with data collection The researcher will always ask for written consent from the informants to provide information. Including requesting permission to record audio in the form of an electronic file in order to convert the audio recording data into word-by-word (verbatim transcription) for use in further data analysis.

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The sample of health care facilities in this study covers both public and private health care facilities in Thailand. They will be selected specifically by a committee for learning about kidney replacement therapy policy in Thailand.² (Learning Committee on Dialysis Policy in Thailand)

(3) focus group discussion

The researcher selects a group of informants for focus group discussions. Divided into 3 groups Each group has 10-12 people. Including 1) personnel providing kidney replacement therapy services such as physician nurse etc. 2) Representatives of private companies Both from companies that manufacture and distribute equipment or materials for kidney replacement therapy. and private kidney replacement therapy service units and 3) patient representative

Group discussion is conducted using group discussion questions, 90 – 120 minutes . There is 1 moderator . and 1 person who observes and records data (observer) and discussion groups of people with similar characteristics (homogenous group) in order to facilitate the disclosure of information There was no guidance from elders in the discussions. These will allow the researcher to control the quality of the group discussions.

Before proceeding with data collection The researcher will always ask for written consent from the informants to provide information. Including requesting permission to record audio in the form of an electronic file in order to convert the recording data into verbatim transcription for use in further data analysis.

(4) Data analysis

The researcher collected data from interviews and group discussions. Using a phenomenological approach , which aims to understand the meaning of phenomena or policy events that occur. The meaning that this analysis is interested in is Meaning from the perspective of those who experience that phenomenon Then categorize and synthesize the information gathered from various sources on a topic-by-issue basis. Finally, report the results of the study.

The researcher conducts quality assurance of the study by reviewing information on each issue collected from various sources. (triangulation) by starting the review from the

² Learning Committee on Dialysis Policy in Thailand consists of National policy makers Kidney specialists both in Thailand and abroad Academics in health technology assessment and policy

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data collection stage. If any inconsistencies in the data are found The researcher will find the cause or explain the discrepancies in the data in that issue. and find a resolution. If a resolution cannot be found The researchers will present the discrepancies found in a discussion of the study results for the benefit of further policy development.

3.5.3 Part 3: Data analysis on kidney replacement therapy services (Data analysis on kidney replacement therapy)

(1) Research design and database and databases)

This is a secondary data analysis (retrospective secondary data analysis) by collecting indicator data from many sources. Each data source has different data characteristics and coverage of different population groups, as shown in **Table 1**

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Table 1 details the data sources used for analysis and their sources.

num ber	Data source name	Regulator	Brief details and limitations
1	System for recording service data for patients with end-stage chronic kidney failure (Chronic Kidney Disease_Disease Management Information System : CKD_DMIS)	NHSO	Patient registration information Changing the method of kidney replacement therapy Reimbursement of services related to kidney replacement therapy Both hemodialysis with hemodialysis machine peritoneal dialysis and kidney transplant (covers patients' NHSO rights and other rights that use a common system Except for the right to pay directly to the Comptroller General's Department)
2	Medical data recording and processing system (e-claim)	NHSO	Information on receiving services and disbursement and diagnosis codes and procedure codes. Both outpatients and inpatients including death information
3	Health data warehouse 52 files	Ministry of Public Health (MOPH)	Data on indicators of service use in hospitals under the Ministry of Public Health.

num ber	Data source name	Regulator	Brief details and limitations
4	Thailand Renal Replacement Therapy registry (TRT registry)	Kidney Association of Thailand	Information on kidney replacement therapy from service units (data posted every 6 months)
5	Hospital registration information	Division of Hospitals and Medical Practice Department of Health Service Support	Hospital registration information (covers private service units)
6	Information on self-assessment and quality assurance of hemodialysis units	Subcommittee for certifying treatment standards by hemodialysis (Hemodialysis)	Information on quality assurance of hemodialysis units By the Police Subcommittee.

(2) Population and sample _

The data used in the study is individual level data which is anonymized and cannot be accessed (de-identified by encryption) . The target population is end-stage chronic kidney disease patients receiving kidney replacement therapy. Between 1 January 2008 – 31 December __ __ 2023 divided by __ __ into 4 subgroups according to treatment pattern As follows:

- New patient receiving hemodialysis (HD new case)
- New patient receiving peritoneal dialysis (PD new case)
- Peritoneal dialysis patients who change their treatment to hemodialysis (shift mode from PD to HD)

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- Hemodialysis patients change their treatment to peritoneal dialysis (shift mode from HD to PD).

(3) Data management _ _

Data management is done under guidelines for maintaining information security. and the researcher has also signed a letter agreeing to keep the data confidential with the above data supervisor. It is divided into 4 steps:

- 1) Requesting access to information Between 1 January 2008 - 31 December 2023 from the above sources.
- 2) Extract data on indicators of interest (**Table 2**) from data sources to prepare for analysis.
- 3) Check the completeness, accuracy, and assess the reliability of the data before analysis. By reviewing the compatibility between variables in the same database. and between different databases
- 4) Analyze data and present it.

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Table 2 Indicators of interest in the study

Clinically important outcome indicators
<ul style="list-style-type: none"> ▪ death rate ▪ Complications <ul style="list-style-type: none"> ▪ Rates of overall outpatient and inpatient admissions ▪ Divided into disease groups including: cardiovascular complications Complications from infection, etc. ▪ Other indicators of treatment quality such as the proportion of patients with anemia
Indicators related to the clinical practice pattern
<ul style="list-style-type: none"> ▪ Rates and waiting times for preparing blood vessels for hemodialysis and inserting a peritoneal dialysis line. ▪ Initiation of emergency or unplanned KRT based on the rate of initiation of inpatient kidney replacement therapy (IPD) and the use of temporary intravenous catheters in the early stages. and the waiting time to prepare the first permanent dialysis line ▪ Frequency and dose of treatment for patients starting hemodialysis with early hemodialysis. Due to the increasing number of new patients, some patients may be treated with insufficient kidney replacement therapy (inadequate dialysis).
Indicators related to patient characteristics
<ul style="list-style-type: none"> ▪ General information: age, gender, place of residence Education level and economic status ▪ Illness information: <ul style="list-style-type: none"> ○ Co-morbidity, Charlson's comorbidity index score, and performance status ○ Service utilization rates, especially IPD, before kidney replacement therapy ○ Kidney function values (estimated glomerular filtration rate) at the time of starting kidney replacement therapy. ▪ Kidney replacement therapy information: <ul style="list-style-type: none"> ○ Location of kidney replacement therapy ○ Vascular access for first kidney replacement therapy ○ Waiting time for permanent vascular access surgery ○ Size and frequency of kidney replacement therapy
Indicators related to service facilities and treatment supply
<ul style="list-style-type: none"> ▪ Number and distribution of service units

- Characteristics of the unit (government hospital private hospital or clinic)
- Manpower (kidney doctor/kidney replacement therapy specialist nurse/vascular surgeon/interventional radiologist)

(4) Data analysis

Analyze data on the impact of the kidney replacement therapy policy. Since the inception of the peritoneal dialysis policy as the first method (PD First policy) on 1 January 2008 and the new policy after 1 February 2022 until 31 December 2023, analyzed Split the period every 5 years and take into account the differences in service units in each health district. Including differences between service units in urban areas and rural areas. The details of the data analysis are as follows.

- 1) Reporting on the situation of kidney replacement therapy within the country during date 1 January 2008 – 31 December __ __ 2023 using descriptive statistics , reporting data in counts and percentages , including using bar charts to display data . Interrupted time series analysis (ITS) was used to analyze the impact of kidney replacement therapy policies on the number of service visits.

Divide the information into 3 parts:

- Number of patients receiving different types of kidney replacement therapy in each period (active cases), number of new patients (new cases) and patients changing kidney replacement therapy (shift mode), death rate Divided according to the method of kidney replacement therapy These include hemodialysis (HD), peritoneal dialysis (PD), and kidney transplantation (KT).
- Number and distribution of kidney replacement therapy service units, potential, and personnel from information sources related to the service units.

- 2) rate and complication rate by studying the rate of admission for both outpatient and inpatient treatment. and divided according to disease groups, including cardiovascular complications complications from infection, etc., and other indicators of the quality of treatment such as

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the proportion of patients with anemia etc. Analyze changes in the characteristics of the population before and after changing policies. The population was divided into 4 groups: 1) new patients receiving kidney replacement therapy with hemodialysis 2) new patients receiving kidney replacement therapy with peritoneal dialysis 3) patients who have changed their kidney replacement therapy from peritoneal dialysis to hemodialysis, and 4) patients who have changed their kidney replacement therapy from hemodialysis to hemodialysis. peritoneal kidney The statistical tests used were Student's t-test or Wilcoxon rank-sum test for normally and non-normally distributed quantitative data, respectively. Chi-square test for qualitative data. and analyzed to find factors affecting the selection of kidney replacement therapy. and changes in such factors Before and after policy change using multivariable logistic regression and generalized estimated equation (GEE).

The factors of interest are as shown in the indicators in **Table 2**

- 3) Analyze the effects of policy changes on indicators related to clinical practice patterns using statistical tests and factors from **Table 2** The issues that will be studied include:
 - Rates and waiting times for preparing blood vessels for hemodialysis and inserting a peritoneal dialysis line.
 - Initiation of emergency or unplanned KRT based on the rate of initiation of inpatient kidney replacement therapy (IPD) and the use of temporary intravenous catheters in the early stages. Waiting time to prepare the first permanent dialysis line
 - Frequency and dose of treatment for patients starting hemodialysis with early hemodialysis. Due to the increasing number of new patients, some patients may be treated with insufficient kidney replacement therapy (inadequate dialysis).
- 4) Event-free period analysis To identify factors affecting important clinical outcomes, including all-cause mortality. Deaths from cardiovascular and

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infectious disease causes and hospital admissions using multivariable cox regression.

- 5) Economic analysis by estimating costs incurred both directly and indirectly . Using both a payer perspective and a social perspective. The cost burden of patients and caregivers will be taken into account. The cost burden of patients and caregivers will be taken into account.

The above analysis may have limitations due to the nature of the data and various confounding factors. The researcher plans to conduct a sensitivity analysis to increase the robustness of the study results. By adjusting the analysis for different time periods. Changing methods for controlling various confounding factors Representing incomplete data using multiple imputation and multi-level analysis that takes into account time differences and treatment locations

3.5.4 Part 4 : Organizing a meeting of the Learning Committee on Dialysis Policy in Thailand (Learning Committee on Dialysis Policy in Thailand)

Organizing a committee meeting to learn about kidney replacement therapy policy in Thailand It is considered part of the educational process. To consider various draft proposals according to the research objectives. There will be a workshop to present research methods. Listen to opinions and suggestions on data collection guidelines. Data analysis guidelines Including joining in the discussion of the study results. which the committee will consist of National policy makers Kidney Association of Thailand International Society of Nephrology, kidney disease specialists both in Thailand and abroad Academics in health technology assessment and policy There is a list as follows:

Table 3List of Learning Committee on Dialysis Policy in Thailand (Learning Committee on Dialysis Policy in Thailand)

number	List of names	Position / Department
1.	Prof. Emeritus Dr. Kriang Tangsanga	Kidney specialist Chairman of Research Department, Bhumirajanagarindra Kidney Institute

number	List of names	Position / Department
2.	Dr. Jadej Thamthatcharee	Secretary-General of the National Health Security Office (NHSO)
3.	Dr. Suwit Wiboonphonprasert	National Science and Technology Development Board (NBTC)
4.	Dr. Somsak Chunharat	Secretary General of the National Public Health Foundation (NSC)
5.	Dr. Wuttidej Opascharoensuk	President of the Kidney Association of Thailand
6.	Prof. Dr. Kueakiat Praditphonsin	Professor of Kidney Diseases Department of Internal Medicine Faculty of Medicine Chulalongkorn University
7.	Prof. Dr. Thalerngsak Kanchanabus	Secretary General of the Kidney Association of Thailand and Head of the Kidney Disease and Disorders Research Unit Metabolic Faculty of Medicine, Chulalongkorn University
8.	Dr. Piyathida Chungsamarn	Kidney specialist Banphaeo Hospital (Public Organization)
9.	Assoc. Prof. Dr. Wannarudee Issaranuwachai	Project leader and senior researcher , Foundation for Health Technology and Policy Assessment
10.	Dr. Vivekanand Jha	Professor & Chair of Global Kidney Health, Imperial College London Immediate Past President ('19 – '21) International Society of Nephrology
11.	Dr. Valerie Luyckx	Associate lecturer, the Renal Division at the Brigham, and Women's Hospital, Harvard Medical School Honorary Associate Professor in Paediatrics and Child Health at the University of Cape Town

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number	List of names	Position / Department
12.	Dr. Gloria Ashuntantang	Consultant Nephrologist, Yaounde General Hospital Professor of Medicine, University of Yaounde I
13.	Dr. Fatiu Arogundade	Professor of Medicine and Consultant Nephrologist, Obafemi Awolowo University
14.	Dr. Sydney Tang	Professor of Medicine, The University of Hong Kong
15.	Dr. Laura Sola	Doctor of Medicine, Universidad de la República de Uruguay

3.5.5 Ethics in doing research

This study collected data from individuals through interviews. Therefore, in order to preserve the rights of the subjects and conduct research according to good clinical research practices (Good Clinical Practice ; GCP) The research project will request research ethics approval from the Institute for Human Research Protection Development (NESDB) .

3.5.6 Scope of research study

study is a study of information for Make a suggestion Support the development of guidelines for monitoring and evaluating Kidney replacement therapy through extracting lessons from Thailand's kidney replacement therapy policy. This does not include the structural design and implementation of the kidney replacement therapy service system (implementation). The research component consists of 4 The main parts according to the project objectives The research methods and operations of each section are detailed in sections 3.5.1 – 3.5. 4

3.5.7 Operation period

8 months to complete.

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3.6.Action plan

Activities/Operational steps	Goals / Indicators	month							
		1	2	3	4	5	6	7	8
1. Developing a research protocol and requesting approval for ethics in human research									
Including 4 parts <ul style="list-style-type: none"> - Developing a research proposal - Organizing a committee workshop to learn about kidney replacement therapy policy in Thailand - Improve the research outline according to suggestions from the meeting. - Submit a project proposal to the Human Research Ethics Committee. 	The research protocol is updated based on the proposal and approved by the funding source. Including operating under the ethical principles of human research.								
2. Data collection									
Part 1 : Accelerated literature review <ul style="list-style-type: none"> - Review of relevant literature and documents 	Collect data in the research study in a quality and sufficient manner for analysis.								
Part 2 : In-depth interviews and group discussions <ul style="list-style-type: none"> - Coordinate to prepare for data collection - Conduct in-depth interviews and group discussions. 									

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Activities/Operational steps	Goals / Indicators	month							
		1	2	3	4	5	6	7	8
Part 3 Analysis of data on the use of kidney replacement therapy services <ul style="list-style-type: none"> - Coordinate with relevant people to request assistance in accessing secondary data from the database. - Manage data appropriately for analysis 									
3. data analysis									
Parts 1 and 2 : Accelerated literature review and in-depth interviews and group discussions. <ul style="list-style-type: none"> - Data were analyzed using a phenomenological approach . 	To answer the research questions according to the objectives of the study.								
Part 3 Analysis of data on the use of kidney replacement therapy services <ul style="list-style-type: none"> - Analyze data with statistics Refer to Section 3.5.3. 									
4. Presentation of study results and dissemination of knowledge									
<ul style="list-style-type: none"> - Organize a stakeholder meeting to provide feedback on the preliminary study results. - Organized a committee workshop to learn about kidney replacement therapy policy in Thailand. 	1) To improve the accuracy and appropriateness of the analysis and synthesize policy recommendations.								

Activities/Operational steps	Goals / Indicators	month							
		1	2	3	4	5	6	7	8
<ul style="list-style-type: none"> - Prepare a complete report and policy summary. - Prepare articles for publication in academic journals. - Participate in presenting academic work on the ISN World Congress of Nephrology 2025 stage. in India 	2) To disseminate the results of the study to the public and provide lessons for future policy implementation.								

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3.7. Budget (budget plan)

Item / Activity	Proposed budget (baht)
1. Compensation category (not more than 30 percent)	
1.1 Project leader number 1 Sir 1.1.1 Dr. Yot Teerawattananont __ (45,000 baht /per month x 8 months)	360,000
1.2 Senior Research Associate Quantity 1 Sir 1.2.1 Assoc . Prof. Dr. Wannarudee Issaranuwachai (30,000 /per month baht x 8 months)	240,000
1.2 Co-researcher Quantity 1 Sir 1.3.1 Saudamini Dabak (18,000 baht /per month x 8 months)	144,000
1.4 Co-researcher, master's degree level Quantity: 4 people 1.4.1 Kinanti Khansa Chavarina 1.4.2 Jirathon Sutawong 1.4.3 Chulathip Bunma 1.4.4 Pantip Chantama (9,000 baht/per month x 4 people x 8 months)	288,000
1.5 Co-researchers, bachelor's degree level Quantity: 1 person 1.5.1 Ben Jamphon Iamsakul (5,250 baht/per month x 8 months)	42,000
Including compensation categories	1,074,000
2. Management fee category (not more than 15 percent)	
2 .1 Telephone costs 3 numbers throughout the project (500 baht /per month x 3 numbers x 8 months)	12,000
2 . 2 Document delivery fee Contact to coordinate postage costs (2,500 baht /per month x 8 months)	20,000
2 . 2 Office supplies cost (3,000 baht /per month x 8 months)	24,000
2 . 4 Photocopying fee	32,000

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Item / Activity	Proposed budget (baht)
(4,000 baht /per month x 8 months)	
Includes management fee categories	88,000
3. Operating expenses category	
3 .1 Researcher meeting expenses 3.1.1 Cost of food, snacks and drinks (350 baht x 8 people x 8 times = 22,400 baht)	22,400
3 .2 Stakeholder meeting fees 3.2.1 Cost of food, snacks and drinks (1,200 baht x 50 people x 3 days = 180,000 baht) 3.2.2 Travel expenses (500 baht x 40 people = 20,000 baht) 3.2.3 Transportation expenses by plane for foreign experts (40 , 000 baht x 10 people = 400 , 000 baht) 3.2.4 Accommodation costs for meeting participants and the research team (1 , 500 baht x 50 people x 2 nights = 150 , 000 baht) 3.2.5 Meeting equipment rental fees (15,000 baht x 1 day = 15,000 baht) 3.2.6 Interpreter fees (15,000 baht x 3 days = 45,000 baht)	840,000
3.3 Stakeholder meeting costs to present preliminary study results. 3.3.1 Cost of meals, snacks and drinks (850 baht x 40 people = 34,000 baht) 3.3.2 Compensation for meeting participants (900 baht x 30 people = 27 , 000 baht) 3.3.3 Transportation costs for meeting participants and the research team. (500 baht x 30 people = 15,000 baht) 3.3.4 Meeting equipment rental fees	106,000

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Item / Activity	Proposed budget (baht)
(15,000 baht x 1 day = 45,000 baht) 3.3.5 Interpreter fees (15,000 baht x 1 day = 15,000 baht)	
3.4 Data collection costs through in-depth interviews and focus group discussions 3.4.1 Compensation for volunteers who provide information in group discussions 3 groups of 12 people each (500 baht x 36 people = 18,000 baht) 3.4.2 Compensation for volunteers who provide insights (900 baht x 36 people = 32,400 baht) 3.4.3 Interview transcript fees (10 baht x 39 items x 60 minutes = 23,400 baht) 3.4.4 Cost of translating the interview tape into English (10,000 baht x 10 items = 100,000 baht)	173,800
3 . 5 Print media preparation costs video media Infographic Fic To disseminate public relations	20 0,000
3 . 6 Quantitative statistical data analysis wages	15 0,000
3 . 7 Wage to analyze qualitative statistical data	300,000
3.8 Meeting to present academic work , 4 people (work India ISN World Congress: www.theisn.org/wcn 25) (1. Dr. Dr. Yot __ Teerawattananon 2. Assoc . Prof. Dr. Wannarudee _ Issaranuwachai 3.Saudamini Dabak and 4. Kinanti Khansa Chavarina 3 .8.1 Accommodation costs (5,600 baht x 4 people x 4 nights = 89,600 baht) 3.8.2 Transportation costs by plane (50,000 baht x 4 people = 200,000 baht)	289,600

Item / Activity	Proposed budget (baht)
3 . 9 Research equipment rental HP notebook computer _ Probook model 440 G 10 CPU : Intel® Core™ i 5-1335 U RAM : 16 GB (700 baht x 5 people x 8 months)	28 , 000
Total operating expenses category	2,109,800
Includes categories (1) + (2) + (3)	3 , 271 , 800
4. Category of fees to support the parent institution.	
4.1 Institutional fees (3,271,800 baht x 10%)	327,180
Total project expenses Includes items (1) + (2) + (3) + (4) + (5)	3,598,980

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3.8.Expected benefits

- policy side

Apply knowledge from lessons learned from kidney replacement therapy policy in Thailand. Let's be a lesson to other low- and middle-income countries. To improve access to kidney replacement therapy services under National Health Insurance Especially the issue of policy changes that have occurred. The role of policy makers in implementing policies in accordance with the changing context of society, economy, and national policy. In addition, it will understand the dynamics of kidney replacement therapy policymaking. It is expected to help guide policy reform in Thailand in the future.

3.9.Agencies that benefit from research

- 1) Health Systems Research Institute
- 2) National Health Security Office
- 3) Ministry of Public Health
- 4) Kidney Association of Thailand
- 5) International Society of Nephrology

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3.10. Product (output) obtained from research

output _	Indicators	
	quantitative	qualitative
Academic articles (academic article)	3 editions	Can be peer-reviewed and published in international journals

3.11. Results (outcomes) obtained from research

Result (outcome)	Indicators	
	quantitative	qualitative
Increase understanding of the dynamics of policymaking Especially the determination of the benefit package under universal health coverage in Thailand.	-	Policy makers can use the results of the study to inform reforms and implement policies to be more effective.

3.12. Project risks

Possible risks	Guidelines for preventing and solving risk problems
1. Research operations <ul style="list-style-type: none"> Delays from the human research ethics review process 	Submit documents to the Human Research Ethics Review Board as soon as possible and receive expedited review. Because this project does not include any actions or experiments. (intervention) for volunteers
<ul style="list-style-type: none"> Restrictions on access to documents and related information Including the said documents and information are not sufficient for analysis. 	Connect relationships and support participation of related people and / or related institutions through committee meetings.

<ul style="list-style-type: none"> ● Refusal of volunteer participation in the project (key information/institutions) 	Select volunteers By adjusting the sample size in cases where volunteers do not agree to participate in the project.
<ul style="list-style-type: none"> ● Providing truthful information Among those with conflicting interests 	Create an understanding of the value of education, especially the issue of setting end goals that will be of mutual benefit to all parties. and emphasizes on maintaining the confidentiality of information and information providers
<ul style="list-style-type: none"> ● Completeness and accuracy of the database used for analysis 	There will be a check for completeness. correctness and assess the reliability of the data before analysis. By reviewing the compatibility between variables in the same database. and taking into account the limitations of each database As briefly described in Table 1 In addition, a sensitivity analysis is planned to confirm the validity of the study results. And the results of the study will receive a final review at a meeting of the Treatment Policy Learning Committee. Kidney replacement in Thailand Before reporting results
2. Budget side : <i>specify</i>	
3. Other, <i>specify</i>	

3.13. Project leaders and all researchers We hereby certify and confirm that this project proposal was created by ourselves. No information is duplicated or modified. The researchers and/or those involved have not infringed any copyright.

- certification
- Not certified

3.14. Submitting the proposal or any part of this research to another funding source

- Yes (specify name of funding source)
- does not have

3.15. Joint investment agency, joint research or matching fund

- Yes (specify name of funding source)
- does not have

3.16. The project leader is responsible for other research projects. Which is in progress or not?

- has (specify details in the table)
- do not have

project	Source of capital	Research status (Project leader/co-researcher)	End date	FTE
Development of cost-effectiveness assessment guidelines (Reference Case) for personalized medicine or precision medicine To be considered in the benefits package of the health insurance system in Thailand	Health Systems Research Institute	2023	3,500,000	10

- do not have

3.17. History and experience of the research team

Name - Surname	position	Affiliated agency Complete with address and telephone number	Mobile number and email	Responsibility for the proposed project		FTE
				Role and duty	Calculated as a proportion (%)	
Project leader						
Dr. Yot Teerawattananon, M.D.	Foundation secretary and senior researchers	Foundation for Health Technology and Policy Assessment (HITAP) , 6th floor, Building 6 , Department of Health, Ministry of Public Health, Tiwanon Road, Mueang District, Nonthaburi Province 11000 Telephone: 02-590-4549	097-414-6566 yot.t@hitap.net	Manage project overview Including conducting research and analyzing data.	10	0.1 5
Co-researcher						
Assoc. Prof. Dr. Wannarudee Isaranuwatjai	Senior Researcher	Foundation for Health Technology and Policy Assessment (HITAP) , 6th floor, Building 6 , Department of	063-936-5463 wanrudee.i@hita p.net	Consulting on research projects Conduct research	5	0. 1 5

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Name - Surname	position	Affiliated agency Complete with address and telephone number	Mobile number and email	Responsibility for the proposed project		FTE
				Role and duty	Calculated as a proportion (%)	
		Health, Ministry of Public Health, Tiwanon Road, Mueang District, Nonthaburi Province 11000 Telephone: 02-590-4549		and analyze data on the use of kidney replacement therapy services.		
Saudamini Dabak	Head of Foreign Department	Foundation for Health Technology and Policy Assessment (HITAP) , 6th floor, Building 6 , Department of Health, Ministry of Public Health, Tiwanon Road, Mueang District, Nonthaburi Province 11000 Telephone: 02-590-4549	saudamini.d@hit ap.net	Consulting on research projects Examine study results and contribute to presentations or publications in international	10	0. 2

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Name - Surname	position	Affiliated agency Complete with address and telephone number	Mobile number and email	Responsibility for the proposed project		FTE
				Role and duty	Calculated as a proportion (%)	
				academic journals.		
Kinanti Khansa Chavarina	Project Associate	Foundation for Health Technology and Policy Assessment (HITAP) , 6th floor, Building 6 , Department of Health, Ministry of Public Health, Tiwanon Road, Mueang District, Nonthaburi Province 11000 Telephone: 02-590-4549	kinanti.c@hitap.n et	Develop research proposals Conduct an accelerated literature review process and analyze interview data / group discussions , including	15	0. 4

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Name - Surname	position	Affiliated agency Complete with address and telephone number	Mobile number and email	Responsibility for the proposed project		FTE
				Role and duty	Calculated as a proportion (%)	
				organizing various meetings		
Jirathon Sutawong	research assistant	Foundation for Health Technology and Policy Assessment (HITAP) , 6th floor, Building 6 , Department of Health, Ministry of Public Health, Tiwanon Road, Mueang District, Nonthaburi Province 11000 Telephone: 02-590-4549	097-230-9248 jiratorn.s@hitap. net	Conduct an accelerated literature review process Analyze interview data / group discussions and act as a coordinator for accessing kidney replacement therapy	15	0. 4

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Name - Surname	position	Affiliated agency Complete with address and telephone number	Mobile number and email	Responsibility for the proposed project		FTE
				Role and duty	Calculated as a proportion (%)	
				databases and organizing various meetings.		
Chulathip Bunma	Statistical analyst	Foundation for Health Technology and Policy Assessment (HITAP) , 6th floor, Building 6 , Department of Health, Ministry of Public Health, Tiwanon Road, Mueang District, Nonthaburi Province 11000 Telephone: 02-590-4549	096-228-2936 chulathip.b@hita p.net	Conduct research Analyze data on the use of kidney replacement therapy services. and is the coordinator requesting access to the kidney	15	0. 4

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Name - Surname	position	Affiliated agency Complete with address and telephone number	Mobile number and email	Responsibility for the proposed project		FTE
				Role and duty	Calculated as a proportion (%)	
				replacement therapy database.		
Panthip Chantama	research assistant	Foundation for Health Technology and Policy Assessment (HITAP) , 6th floor, Building 6 , Department of Health, Ministry of Public Health, Tiwanon Road, Mueang District, Nonthaburi Province 11000 Telephone: 02-590-4549	Parntip.j@hitap.net	Develop research proposals and is a meeting coordinator	15	0. 4
Benjamphon Iamsakul	research assistant	Foundation for Health Technology and Policy Assessment (HITAP) , 6th floor, Building 6 , Department of Health, Ministry of Public Health,	Benjamaporn.e@ hitap.net	Be the meeting coordinator	15	0. 4

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Name - Surname	position	Affiliated agency Complete with address and telephone number	Mobile number and email	Responsibility for the proposed project		FTE
				Role and duty	Calculated as a proportion (%)	
		Tiwanon Road, Mueang District, Nonthaburi Province 11000 Telephone: 02-590-4549				

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External research collaborators						
Dr. Jirat Phanjit	Researcher	Department of Internal Medicine Faculty of Medicine Chulalongkorn University 1873 Rama IV Road, Pathumwan Subdistrict, Pathumwan District, Bangkok Call 02-256-4000 ext. 61803-4	jeerathp@gmail.com	Develop research proposals Conduct research and analyze data on the use of kidney replacement therapy services	-	-
Dr. Wirun Limsawat, M.D.	Researcher	Office of Social and Health Research 3rd Floor, Building 88/37 (Procurement Warehouse), Public Health Soi 6, Ministry of Public Health Tiwanon Rd., Talat Khwan Subdistrict, Mueang District, Nonthaburi 11000, Thailand	092-336-1212 lwirun@gmail.com	Develop research proposals Conduct research and analyze interview data / group discussion	-	-

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External research collaborators						
		Telephone 0 - 2590 - 1352 , 0 - 2590 - 1498				
Thanainan Chuanchaiyakul	Research fellow	Foundation for Health Technology and Policy Assessment (HITAP) 6th Floor, Building 6 , Department of Health, Ministry of Public Health, Tiwanon Road, Mueang District, Nonthaburi 11000 , Thailand Telephone: 02-590-4549	tanainan.chu@gmail.com	Conduct an accelerated literature review process and analyze interview data / group discussions, including organizing various meetings	-	-
Natcha Yongpipatwong	Researcher	Thailand Development Research Institute (TDRI) 565 Soi Ramkhamhaeng 39 (Theplila) Wang Thonglang District Bangkok 10310	punpunshb@gmail.com natcha.y@tdri.or.th	Conduct an accelerated literature review process and analyze interview	-	-

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External research collaborators						
		telephone 02-718-5460	02-718-5460 ext. 429	data / group discussions, including supporting presentations or publications in international academic journals.		
Juthamat Piyawong	Researcher	Office of Social and Health Research (NHST) 3rd Floor , Building 88/37 (Procurement Warehouse) , Public Health Soi 6 , Ministry of Public Health Tiwanon Rd . Talat Khwan Subdistrict Mueang District _ Nonthaburi Province 11000 _	j.piyawong24@gmail.com	Analyze interview data / group discussion	-	-

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External research collaborators						
		Telephone 0 - 2590 - 1352 , 0 - 2590 - 1498				
Supitcha Thitchue	research assistant	Office of Social and Health Research (IPST) 3rd Floor, Building 88/37 (Procurement Warehouse), Public Health Soi 6, Ministry of Public Health, Tiwanon Road, Talat Khwan Subdistrict, Mueang District, Nonthaburi Province 11000 Telephone 0 - 2590 - 1352 , 0 - 2590 - 1498	Supichcha.thit09@gmail.com	Analyze interview data / group discussion and	-	-

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History and experience

Head of research project

1. Name - Surname (Thai language) Dr. Yot Teerawattananont

(English) Dr. Yot Teerawattananon

2. ID card number 3-2405-00140-87-4

3. educational record (*specify bachelor's degree onwards*)

Year of study - graduation	Degree received	Name of educational institution- country
2006 _	Doctorate in Philosophy in Health Economics	University of East Anglia, England
B.E. 25 46	Master's degree Health Sciences field	University of East Anglia, England
1997 _	Doctor of Medicine	Chulalongkorn University

4. Type of professional license (*if any*) Profession: Doctor Professional license number W . 22171

5. Work experience

period	position	Organization name
2010 - current	Secretary-General of the Foundation for the Evaluation of Health Technology and Policy	Foundation for the Evaluation of Health Technology and Policy
2018 - current	Special Professor (Visiting Professor)	Saw Swee Hock School of Public Health (SSHSPH), National University of Singapore
2020 - current	Non-resident Fellow,	Center for Global Development
2015 _ - 2021	Founding member of the executive committee	Founding member of the executive committee International Decision

		Support Initiative (iDSI), http://www.idsihealth.org
2007 - 2017	Founder and Head Health Technology and Policy Assessment Project (HITAP)	Health Technology and Policy Assessment Project (HITAP)
2012 - 2019	Senior Research Scholar of Thailand Research Fund on Health Technology Assessment	Thailand Research Fund
2019 - 2020	Secretary General	National Public Health Foundation
2011 - 2016	Senior Researcher	International Health Policy Development Office
25 43 - 2001	Research Fellow, Senior Research Scholar Program in Health Financing and Health Economics	Health Systems Research Institute
25 41 - 2000	Hospital Director	Pong Hospital, Phayao Province
25 40 - 1998	Medical Staff	Chiang Kham Hospital, Phayao Province

6. Experience related to research administration both inside and outside the country

Head of research projects, 19 projects (some)

- 1) Cost-utility evaluation and budget impact analysis of Next Generation Sequencing (NGS) technology in patients with acute, idiopathic symptoms.
- 2) Assessing the cost-effectiveness of genetic code analysis in infants with severe epilepsy.
- 3) Establishing COVID- 19 Research and Decision Support Initiative in Asia (CORESIA)
- 4) Assessing the impact and cost-effectiveness of preferred COVID vaccines for use in vaccine development and selection for use in Thailand.

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- 5) Development of criteria for resource allocation in critical patient care during the COVID-19 outbreak in Thailand
- 6) COVID- 19 Multi-Model Comparison Consortium
- 7) Synthesizing empirical evidence to develop policy recommendations for reimbursement for kidney replacement therapy services for patients with acute kidney failure in Thailand.
- 8) Evaluation of performance according to the patient and public health personnel safety strategy 2018-2021 and dealing with the coronavirus disease 2019 (COVID-19) situation
- 9) Study of the impact of the coronavirus disease 2019 (COVID- 19) outbreak on access to health services for the elderly in Thailand.
- 10) PMAC 2019 Commissioned work on “Best Buys, Wasted Buys and DIYs for NCDs prevention ”
- 11) Assessment of health technology for universal health coverage (TRF)
- 12) Project to assess the situation in disease prevention and control policy to establish a communicable disease control center Regionally, Southeast Asia
- 13) International Decision Support Initiative (iDSI)
- 14) An early health technology assessment of target product profiles for COVID- 19 vaccines: data for supporting R&D for better vaccine and selecting the right vaccine for maximizing public health impact
- 15) Development of Health Facility Readiness Tools for the Ministry of Health Timor-Leste
- 16) Capacity strengthening for Implementation of Evidence-informed policy for universal health coverage
- 17) Health Technology Assessment for Supporting Universal Healthcare Coverage
- 18) Synthetic research project to evaluate the economic outcomes of family doctor clinic policies.
- 19) Assessment of health technology for universal health coverage (TRF)
- co-researcher, 17 projects (some)
 - 1) Organizing the process for developing a comprehensive benefits package. Under the National Health Insurance System in 2022

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- 2) Analyzing the impact of COVID- 19 on the public health system to strengthen the response to the outbreak and the sustainability of the universal health coverage system in Thailand.
- 3) endovascular treatment for acute ischemic stroke patients in the Thai population.
- 4) Economic evaluation of a supraspinal epidural catheter in patients with persistent pain after lumbar spine surgery and spinal canal stenosis.
- 5) Economic evaluation of laparoscopic surgery compared with open surgery for the treatment of gallstones.
- 6) A randomized controlled trial of physical activity in the workplace .
- 7) Studying the impact of the coronavirus disease 2019 (COVID-19) outbreak on access to health services for the elderly in Thailand.
- 8) Development of a Chinese Children's Clinical Comprehensive Evaluation System
- 9) Elicitation of contact tracing preferences: performance VS equality
- 10) Knowledge Exchange in the Time of COVID- 19: Scaling-up learning on evidence-informed decision-making to address healthcare challenges in low-and-middle income countries
- 11) Project to evaluate performance according to the patient and public health personnel safety strategy 2018-2021 and dealing with the coronavirus disease 2019 (COVID-19) situation.
- 12) Study of expanding newborn hearing screening services in Thailand: feasibility, cost, and economic worthiness
- 13) The Provision of services for Technical assistance for Health Technology Assessment Capacity Building in the Philippines
- 14) Technical Assistance for Rotavirus Vaccine Economic Evaluation for National Implementation in Bhutan
- 15) Rapid assessment of patient efficiency
- 16) Total Systems Effectiveness pilot project in Thailand
- 17) Data development project "Worthy measures Wasted measures and do-it-yourself measures in the prevention of chronic non-communicable diseases" for the Prince Mahidol Award International Academic Conference

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7. Research completed (*Specify the name of the research work year printed Publication and sources of capital for the past no more than 5 years*)

international work In 2019-2023, 74 articles . namely

- 1) Akksilp K, Isaranuwatthai W, Teerawattananon Y and Chen C (2023) The association between health costs and physical inactivity; analysis from the Physical Activity at Work study in Thailand. *Front. Public Health* 11:1037699. doi: 10.3389/fpubh.2023.1037699
- 2) Cai CGX, Lim NW-H, Huynh VA, Ananthakrishnan A, Dabak SV, Dickens BSL, Faradiba D, KC S, Morton A, Park M, Rachatan C, Sittimart M, Wee HL, Lou J, Teerawattananon Y. Economic Analysis of Border Control Policies during COVID-19 Pandemic: A Modeling Study to Inform Cross-Border Travel Policy between Singapore and Thailand. *International Journal of Environmental Research and Public Health*. 2023; 20(5):4011. <https://doi.org/10.3390/ijerph20054011>
- 3) Kc, S., Lin, LW, Bayani, DBS, Zemlyanska, Y., Adler, A., Ahn, J., Chan, K., Choiphel, D., Genuino-Marfori, AJ, Kearney, B., Liu. , Y., Nakamura, R., Pearce, F., Prinja, S., Pwu, R., Shafie, AA, Sui, B., Suwantika, A., Tunis, S., Wu, H., Zalcborg, J., Zhao, K., Isaranuwatthai, W., Teerawattananon, Y., Wee, H. What, Where, and How to Collect Real-World Data and Generate Real-World Evidence to Support Drug Reimbursement Decision-Making in Asia: A reflection Into the Past and A Way Forward. *International Journal of Health Policy and Management*, 2023; (): -. doi: 10.34172/ijhpm.2023.6858
- 4) Sukmanee J, Butchon R, Karunayawong P, Saeraneesopon T, Boonma C, Teerawattananon Y, Isaranuwatthai W. Pattern of OPD utilisation during the COVID-19 pandemic under the Universal Coverage Scheme in Thailand: what can 850 million records tell us? *BMC Health Serv Res*. 2023 Feb 3;23(1):116. doi: 10.1186/s12913-023-09121-3.
- 5) Wang Y, Low FZ, Low YY, Lai HS, Lim JH, Yeow CH, Teerawattananon Y. Using early health economic modeling to inform medical innovation development: a soft robotic sock in poststroke patients in Singapore. *Int J Technol Assess Health Care*. 2023 Jan 11;39(1):e 4. doi: 10.1017/S026646232200335X.
- 6) Botwright S, Win EM, Kapol N, Benjawan S, Teerawattananon Y. Cost-Utility Analysis of Universal Maternal Pertussis Immunisation in Thailand: A Comparison of Two Model

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- 7) Ananthakrishnan A, Luz ACG, Kc S, Ong L, Oh C, Isaranuwachai W, Dabak SV, Teerawattananon Y, Turner HC. How can health technology assessment support our response to public health emergencies? *Health Res Policy Syst*. 2022 Nov 4;20(1):124. doi: 10.1186/s12961-022-00925-z.
- 8) Sukmanee J, Butchon R, Sarajan MH, Saeraneesopon T, Boonma C, Karunayawong P, Teerawattananon Y, Isaranuwachai W. Estimating the potential overdiagnosis and overtreatment of acute appendicitis in Thailand using a secondary data analysis of service utilization before, during and after the COVID-19 lockdown policy. *PLoS One*. 2022 Nov 3;17(11):e 0270241. doi: 10.1371/journal.pone.0270241. eCollection 2022.
- 9) Teerawattananon Y, Botwright S, Ozturk MH. Planning for future COVID-19 vaccine procurement. *Bull World Health Organ*. 2022 Sep 1;100(9):526-526A. doi: 10.2471/BLT.22.288729.
- 10) Katika Akksilp, Jemima Jia En Koh, Vanessa Tan, Eunice Huiying Tong, Nuttakarn Budtarad, Guo Xueying, Anna Valeria Dieterich, Bee Choo Tai, Andre Matthias Müller, Wanrudee Isaranuwachai, Thomas Rouyard, Ryota Nakamura, Falk Müller-Riemenschneider, Yot Teerawattananon, Cynthia Chen. The physical activity at work (PAW) study: A cluster randomized trial of a multicomponent short-break intervention to reduce sitting time and increase physical activity among office workers in Thailand. *The Lancet Regional Health - Southeast Asia*, 2022, <https://doi.org/10.1016/j.lansea.2022.100086>.
- 11) Isaranuwachai W, Nakamura R, Wee HL, Sarajan MH, Wang Y, Soboon B, Lou J, Chai JH, Theantawee W, Laoharuangchaiyot J, Mongkolchaipak T, Thathong T, Kingkaew P, Tungsgana K, Teerawattananon Y. What are the impacts of increasing cost-effectiveness Threshold? a protocol on an empirical study based on economic evaluations conducted in Thailand. *PLoS One*. 2022 Oct 3;17(10):e 0274944. doi: 10.1371/journal.pone.0274944.
- 12) Rattanavipapong W, Worakijthamrongchai T, Soboon B, Luankongsomchit V, Kongmuangpuk M, Isaranuwachai W, Teerawattananon Y, Nilanont Y. Economic

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- 13) Shiroya T, Murata T, Ahn J, Li N. New Region-Specific Preference-Based Measure in East and Southeast Asia. *Value Health Reg Issues*. 2022 Sep 10;32:62 -69. doi: 10.1016/j.vhri.2022.07.002.
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- 15) Wang Y, Luangasanatip N, Pan-Ngum W, Isaranuwachai W, Prawjaeng J, Saralamba S, Painter C, Briones JR, Teerawattananon Y. Assessing the cost-effectiveness of COVID-19 vaccines in a low incidence and low mortality setting: the case of Thailand at start of the pandemic. *Eur J Health Econ*. 2022 Aug 11:1-14. doi: 10.1007/s10198-022-01505-2. Online ahead of print.
- 16) Teerawattananon Y, Dabak SV, Isaranuwachai W, Lertwilairatanapong T, Shafie AA, Suwantika AA, Oh C, Srisasalux J, Cheanklin N. What Can We Learn From Others to Develop a Regional Center for Infectious Diseases in ASEAN? Comment on "Operationalising Regional Cooperation for Infectious Disease Control: A Scoping Review of Regional Disease Control Bodies and Networks". *Int J Health Policy Manag*. 2022 Jun 14. doi: 10.34172/ijhpm.2022.7281. Online ahead of print.
- 17) Briones J, Wang Y, Prawjaeng J, Wee HL, Kairu A, Orangi S, Barasa E, Teerawattananon Y. A Data-Driven Analysis of the Economic Cost of Non-Pharmaceutical Interventions: A Cross-Country Comparison of Kenya, Singapore, and Thailand. *Int J Public Health*. 2022 Jun 28;67:1604854 . doi: 10.3389/ijph.2022.1604854. eCollection 2022.
- 18) Oortwijn W, Husereau D, Abelson J, Barasa E, Bayani DD, Canuto Santos V, Culyer A, Facey K, Grainger D, Kieslich K, Ollendorf D, Pichon-Riviere A, Sandman L, Strammiello V, Teerawattananon Y. Designing and Implementing Deliberative Processes for Health Technology Assessment: A Good Practices Report of a Joint HTAi/ISPOR Task Force. *Value Health*. 2022 Jun;25(6):869-886. doi: 10.1016/j.jval.2022.03.018.

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- 21) Teerawattananon Y, Kc S, Chi YL, Dabak S, Kazibwe J, Clapham H, Lopez Hernandez C, Leung GM, Sharifi H, Habtemariam M, Blecher M, Nishtar S, Sarkar S, Wilson D, Chalkidou K, Gorgens M, Hutubessy. R, Wibulpolprasert S. Recalibrating the notion of modeling for policymaking during pandemics. *Epidemics*. 2022 Mar;38:100552 . doi: 10.1016/j.epidem.2022.100552. Epub 2022 Mar 2.
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- 25) Teerawattananon Y, Anothaisintawee T, Pheerapanyawaranun C, Botwright S, Akksilp K, Sirichumroonwit N, Budtarad N, Isaranuwatthai W. A systematic review of

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methodological approaches for evaluating real-world effectiveness of COVID-19 vaccines: Advising resource-constrained settings. *PLoS One*. 2022 Jan 11;17(1):e0261930. doi: 10.1371/journal.pone.0261930. eCollection 2022.

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- 27) Jit M, Ananthakrishnan A, McKee M, Wouters OJ, Beutels P, Teerawattananon Y. Multi-country collaboration in responding to global infectious disease threats: lessons for Europe from the COVID-19 pandemic. *Lancet Reg Health Eur*. 2021 Oct;9:100221 . doi: 10.1016/j.lanepe.2021.100221. Epub 2021 Oct 7. PMID: 34642675.
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Co-researcher (person 1)

1. Name - Surname (Thai language) Assoc. Prof. Dr. Wannarudee
Issaranuwachai

(English) Miss. Wanrudee Isaranuwachai

2. ID card number 3-1009-00140-55-4

3. educational record (*specify bachelor's degree onwards*)

Year of study - graduation	Degree received	Name of educational institution- country
2006 - 2011 _	Doctorate degree field Health Services Research	University of Toronto - Toronto, ON, Canada
25 42 - 2003	Bachelor's degree branch Health Sciences	University of Waterloo, Waterloo, Canada

4. Type of professional license (*if any*) None

5. Work experience

period	position	Organization name
2020 - present _	Project leader and senior researchers	Foundation for Health Technology and Policy Assessment
2019 - present _	Research Scientist	St. Michael's Hospital, Toronto, ON, Canada
2015 - present _	Research Fellow	Institute for Clinical Evaluative Sciences, Toronto, ON, Canada
2014 - present _	Associate Professor	Institute of Health Policy, Management and Evaluation, University of Toronto, Toronto, ON, Canada

6. Experience related to research administration both inside and outside the country

Head of research projects, 22 projects

- 1) Understanding the challenges to develop monitoring and evaluation framework for COVID- 19 vaccination policy in Thailand
- 2) Impact of smoking on health care cost among cancer patients in Ontario
- 3) Economic analysis of remote patient monitoring
- 4) The Evaluation of Integrated Service Coordination within the Mid East Toronto and South Toronto Health Links
- 5) The implications of four specific potential reforms of Ontario's Assistive Device Program (ADP) on price negotiations and competitive bidding
- 6) Cost-effectiveness analysis of a Rapid Triage Test for Severe Infection versus the Integrated Management of Childhood Illness Approach
- 7) Incidence, prevalence, and cost of HPV-related diseases in Ontario
- 8) Cost Analysis of Rapid Desensitization for Rifampin Allergy in the Treatment of M Tuberculosis.
- 9) Economic analysis of At Home and CATCH-H interventions
- 10) Cost-effectiveness of the Ontario Fracture Screening and Prevention Program.
- 11) Budget impact analysis to support evidence-based decision making for MR-guided brachytherapy for treatment of locally advanced cervical cancer in Ontario
- 12) Economic analysis of pneumatic retinopexy versus vitrectomy for the management of rhegmatogenous retinal detachment.
- 13) Revision of detailed technical report template of the pan-Canadian Oncology Drug Review's Economic Guidance Report template
- 14) Economic analysis of primary care memory clinics in remote and underserved regions in Ontario
- 15) Cost Description of Food-Establishments Epinephrine Auto-Injector Study.
- 16) Workload measures in oncology settings
- 17) Economic analysis of MRI-guided brachytherapy for cervical cancer
- 18) Economic analysis of nicotine replacement therapies
- 19) Cost-effectiveness analysis of a DIEP vs MS-TRAM
- 20) Economic analysis of New Ambulatory Model of Care for oncology
- 21) Cost Description of HealthSteps program.

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22) Economic analysis of smoking cessation programs in Ontario



co-researcher, 51 projects

- 1) Proposal to conduct a situational assessment on disease prevention and control for the establishment of a Southeast Asia Center for Infectious Disease Control (SEACID)
- 2) A study to develop a quarantine guideline for medical and public health personnel who have been exposed to COVID- 19
- 3) COVID- 19: An early health technology assessment of target produce profiles for COVID- 19 vaccines: data for supporting R&D for better vaccine and selecting the right vaccine for maximizing public health impact
- 4) Understanding how cancer patients value progression-free survival
- 5) Enhancing Outcomes in Vascular Cognitive Impairment through use of Home Sleep Apnea Testing: A Randomized Controlled Trial (ENCHANT study).
- 6) Assessing the Real-World Clinical and Economic Outcomes of Emerging Innovative Technologies in Oncology: The Cases of Biosimilars and CAR T-cells.
- 7) Indirect costs and consequences of frequent national tenders for coagulation factor concentrates in the era of extended half-life products: Health economics and patient perspectives.
- 8) Multi-gene panel testing for tailored treatment of advanced cancer in Ontario: What is the cost and benefit? OICR-CCO Health Services Research Network
- 9) MoveSTroNg: A model for delivering Strength Training and Nutrition education for older adults in Canadian communities
- 10) The DECIPHER Study: DEterminants of Function and Clinically Important outcomes in Proximal Humerus Fractures in the Elder Population:
- 11) The Rising Burden of Lung Cancer: An Inter-provincial Health Economic Analysis.
- 12) The Functional Improvement Trajectories After Surgery (FIT After Surgery) Study: A Multicentre Prospective Cohort Study to Evaluate the Incidence, Trajectories, Risk Factors, Impact and Healthcare Costs Related to Significant New Disability after Major Elective Surgery.
- 13) TELEPROM-Y: Improving access and experience of mental healthcare for youth through virtual models of care.

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- 14) Developing a Framework for the Incorporation of Real World Evidence into Cancer Drug Funding Decisions in Canada.
- 15) If you build it, will they come? And live longer?
- 16) A Multi-Province Approach to Real World Evidence Development for Cancer Drugs: A Case Study of Melanoma
- 17) Are Patient Educational Materials on Cancer Screening More Effective When Co-created with Patients?
- 18) Evaluating the effectiveness of an online knowledge translation intervention for minimizing procedural pain in hospitalized infants.
- 19) How can Canadian Municipalities enhance the Right to Food?
- 20) Developing new tools to project value of more data versus changing clinical practice using epidemic models
- 21) Smart Homes: Developing and Testing Strategies Supporting Community Re-Integration for Clients with Severe Mental Illness
- 22) The DECIPHER Study: DEterminants of Function and Clinically Important outcomes in Proximal Humerus Fractures in the Elder Population: A National CohoRt.
- 23) Child developmental health, maternal psychosocial distress, and health system costs at 18 months corrected age: Effectiveness of a cluster randomized controlled trial of Family Integrated Care in Level II NICUs
- 24) Developing a Framework for the Incorporation of Real World Evidence into Cancer Drug Funding Decisions in Canada.
- 25) The SMARt VIEW, CoVeRed : TechNology Enabled remote monitoring and Self-MAnagemenT-Vision for patient EmpoWerment following Cardiac and Vascular surgery.
- 26) Operative versus Non-operative Treatment of Acute Unstable Chest Wall Injuries: A Multi-Centred Randomized Controlled Trial.
- 27) Does regular xylitol use reduce the number of acute otitis media episodes in young children? A pragmatic RCT.
- 28) Screening for Sleep Apnea in Stroke and TIA Patients using a Portable Sleep Monitor: A Randomized Controlled Trial.

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- 29) What comes next: Real world health services utilization, outcomes and cost-effectiveness after BRCA 1 and BRCA 2 testing in Canada.
- 30) Optimizing the health of seniors: The development, implementation and evaluation of an electronic multi-chronic disease tool (e-MCD).
- 31) ThoughtSpot: Enhancing self-efficacy for help-seeking among transition aged youth in postsecondary settings with mental health and/or substance use concerns using crowd-sourced online and mobile technologies.
- 32) Caring near and far: A multi province investigation of remote monitoring technologies connecting community based older adults and their care team
- 33) Family Integrated Care (FICare) in Level II NICUs: An innovative program in Alberta.
- 34) HealtheSteps™: Engaging Boys and Men in a Healthier Lifestyle.
- 35) Interventions to support long-term adherence and decrease cardiovascular events post-acute coronary syndrome (ISLAND-ACS).
- 36) Evaluating collaborative care for postpartum depression in pediatric primary care settings (EPDS Trial).
- 37) Dialectical Behavior Therapy for Chronically Self-Harming Individuals with Borderline Personality Disorder: Evaluating the Clinical and Cost Effectiveness of a Six-Month Treatment.
- 38) FORESITE-VISION: Further Observation for chronic pain and poor functional recovery Risk factor Examination at the home SITE, a study in partnership with the VISION Cardiac Surgery Prospective Cohort Study
- 39) A multisite application of FORESITE-VISION: Further Observation for chronic pain and poor functional recovery Risk factor Examination at two SITES, a study in partnership with the VISION Cardiac Surgery Prospective Cohort Study.
- 40) The effect of an enhanced dietary portfolio plus exercise on cardiovascular risk in high risk individuals
- 41) Technical Assistance for Rotavirus Vaccine Economic Evaluation for National Implementation in Bhutan.
- 42) Best buys, wasted buys and controversies in NCD prevention.

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- 43) Capacity Strengthening for Implementation of Evidence-informed Policy for Universal Health Coverage.
- 44) Economic analysis of mental health and addiction initiatives. Central Local Health Integration Network
- 45) Protocol: Economic analysis of mental health and addiction initiatives.
- 46) Economic evaluation of the telemedicine program to screen retinopathy in premature infants in Ontario.
- 47) Rapid literature review: Economic evaluation of smoking cessation program in the oncology setting.
- 48) Economic analysis of TrueNTH initiatives.
- 49) Protocol: Economic analysis of TrueNTH initiatives.
- 50) Economic analysis of home-based subcutaneous immunoglobulin therapy.
- 51) Economic analysis of BRIDGES projects
7. Research completed (*Specify the name of the research work year printed Publication and sources of capital for the past no more than 5 years*)
- international work Total 50 projects namely
- 1) Teerawattananon, Y., Anothaisintawee, T., Pheerapanyawaranun, C., Botwright, S., Akksilp, K., Sirichumroonwit, N., Budtarad, N. & **Isaranuwatthai W** . A systematic review of methodological approaches for evaluating real-world effectiveness of COVID-19 vaccines: Advising resource-constrained settings. PLoS One. 2022 Jan 11;17(1):e 0261930. doi: 10.1371/journal.pone.0261930.
 - 2) Beca, JM, Dai, WF, Pataky, RE, Tran, D., Dvorani, E., **Isaranuwatthai, W** ., Peacock, S., Alvi, R., Cheung, WY, Earle, CC, Gavura, S. & Chan, KKW Real-world Safety of Bevacizumab with First-line Combination Chemotherapy in Patients with Metastatic Colorectal Cancer: Population-based Retrospective Cohort Studies in Three Canadian Provinces. Clin Oncol (R Coll Radiol). 2022 Jan;34(1):e 7-e17. doi: 10.1016/j.clon.2021.08.009. Epub 2021 Aug 26.
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- 6) Rodrigues, IB, Wang, E., Keller, H., Thabane, L., Ashe, MC, Brien, S., Cheung, AM, Funnell, L., Jain, R., Loong, D., Isaranuwatthai, **W** ., Milligan, J., Mourtzakis, M., Papaioannou, A., Straus, S., Weston, ZJ & Giangregorio, LM The MoveStrong program for promoting balance and functional strength training and adequate protein intake in pre-frail older adults: A pilot randomized controlled trial. PLoS One. 2021 Sep 24;16(9):e 0257742. doi: 10.1371/journal.pone.0257742.
- 7) Turner, HC, Archer, RA, Downey, LE, **Isaranuwatthai, W** ., Chalkidou, K., Jit , M. & Teerawattananon, Y. An Introduction to the Main Types of Economic Evaluations Used for Informing Priority Setting and Resource Allocation in Healthcare. : Key Features, Uses, and Limitations. Front Public Health. 2021 Aug 25;9:722927 . doi: 10.3389/fpubh.2021.722927.
- 8) Rattanavipapong, W., Wang, Y., Butchon, R., Kittiratchakool, N., Thammatacharee, J., Teerawattananon, Y. & **Isaranuwatthai, W** . Retrospective secondary data analysis to identify high-cost users in inpatient department of hospitals in Thailand, a middle-income country with universal healthcare coverage. BMJ Open. 2021 Jul 28;11(7):e 047330. doi: 10.1136/bmjopen-2020-047330.
- 9) Saunders , H., Sujic, R., Bogoch, E. R., Jain, R., Jinah, A., Elliot-Gibson, V., Mendlowitz, A. B., Linton, D., Inrig, T., Isaranuwatthai **W** . & Sale, JEM Cost-Utility Analysis of the Ontario Fracture Screening and Prevention Program. J Bone Joint Surg Am. 2021 Jul 7;103(13):1175-1183. doi: 10.2106/JBJS.20.00795.

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- 10) Millar, R., Morton, A., Bufali, MV, Engels, S., Dabak, SV, **Isaranuwatthai, W** ., Chalkidou, K. & Teerawattananon, Y. Assessing the performance of health technology assessment (HTA) agencies: developing a multi-country, multi-stakeholder, and multi-dimensional framework to explore mechanisms of impact. *Cost Eff Resour Alloc*. 2021 Jul 2;19(1):37. doi: 10.1186/s12962-021-00290-8.
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- 12) Sharma, D., Aggarwal, AK, Wilkinson, T., **Isaranuwatthai, W**., Chauhan, AS & Prinja, S.. Adherence to country-specific guidelines among economic evaluations undertaken in three high-income and middle-income countries: a systematic review. *Int J Technol Assess Health Care*. 2021 Jul 1;37(1):e 73. doi: 10.1017/S0266462321000404.
- 13) Stolee, P., Elliott, J., Giguere, A.M., Mallinson, S., Rockwood, K., Sims Gould, J., Baker, R., Boscart, V., Burns, C., Byrne, K., Carson, J., Cook, RJ, Costa, AP, Giosa, J., Grindrod, .K, Hajizadeh, M., Hanson, HM, Hastings, S., Heckman, G., Holroyd-Leduc, J., Isaranuwatthai . , **W** ., Kuspinar, A., Meyer, S., McMurray, J., Puchyr, P., Puchyr, P., Theou, O. & Witteman, H. Transforming primary care for older Canadians living with frailty: mixed methods. study protocol for a complex primary care intervention. *BMJ Open*. 2021 May 13;11(5):e 042911. doi: 10.1136/bmjopen-2020-042911.
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- 15) Tangcharoensathien, V., Sirilak, S., Sritara, P., Patcharanarumol, W., Lekagul, A., **Isaranuwatthai, W** ., Wittayapipopsakul, W. & Chandrasiri, O.; Co-production of

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- 16) Sharma, M., Teerawattananon, Y., Dabak, SV, **Isaranuwatthai, W** ., Pearce, F., Pilsant, S., Sabirin, J., Mayxay, M., Guerrero, M., Nguyen, KP, Sastroasmoro, S. & Htoo, TS; A landscape analysis of health technology assessment capacity in the Association of South-East Asian Nations region. *Health Res Policy Sys* 19, 19 (2021). <https://doi.org/10.1186/s12961-020-00647-0>
- 17) Benzies, KM, Aziz, K., Shah, V., Faris, P., **Isaranuwatthai, W** ., Scotland, J., Larocque, J., Mrklas, KJ, Naugler, C., Stelfox, HT, Chari, R. ., Soraisham, A.S., Akierman, A.R., Phillipos, E., Amin, H., Hoch, JS, Zandoni, P., Kurilova, J. & Lodha, A.; Alberta FiCare Level II NICU Study Team. Effectiveness of Alberta Family Integrated Care on infant length of stay in level II neonatal intensive care units: a cluster randomized controlled trial. *BMC Pediatr.* 2020 Nov 28;20(1):535. doi: 10.1186/s12887-020-02438-6. PMID: 33246430; PMCID: PMC7697372.
- 18) Clausen, M., Mighton, C., Kiflen, R., Sebastian, A., Dai, WF, Mercer, RE, Beca, JM, **Isaranuwatthai, W** ., Chan, KKW & Bombard, Y. Use of real-world. Evidence in cancer drug funding decisions in Canada: a qualitative study of stakeholders' perspectives. *CMAJ Open.* 2020 Nov 24;8(4):E 772-E778. doi: 10.9778/cmajo.20200118. PMID: 33234584; PMCID: PMC7721249.
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Co-researcher (2nd person)

1. Name - Surname (English) Miss. Saudamini Vishwanath Dabak
2. ID card number (passport) Z5149090
3. educational record (*specify bachelor's degree onwards*)

Year of study - graduation	Degree received	Name of educational institution- country
2 010 - 2012	Master of Arts (International Relations and International Development)	Johns Hopkins School of Advanced International Studies (SAIS)
2 005 - 2008	Bachelor of Arts (Economics)	St. Xavier's College, University of Mumbai

4. Type of professional license (*if any*) None
5. Work experience

period	position	Organization name
2020 - present _	Head, International Unit	Health Intervention and Technology Assessment Program (HITAP), Ministry of Public Health, Thailand
2015 - 2020	Technical Advisor	Health Intervention and Technology Assessment Program (HITAP), Ministry of Public Health, Thailand
2012 - 2015	Consultant/Data Management Specialist	The World Bank Group , Washington DC, USA
2008 – 2010	Wholesale Banking Trainee ; Portfolio Manager /Client Coverage Manager	Standard Chartered Bank , Mumbai, India

6. Experience related to research administration both inside and outside the country
 Head of research projects, 3 projects

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- 1) Evaluation of Health Facility Readiness in Timor Leste
- 2) Evaluation of Gavi Health Systems Strengthening Support in Myanmar
- 3) Understanding the landscape of Health Technology Assessment in India

 co-researcher, 4 projects

- 1) The relative importance of equity and efficiency in the design and performance management of COVID-19 contact tracing programs: a discrete choice experiment
- 2) The Effectiveness of Conversational AI Service (Chatbot) Utilization on Vaccine Confidence And Uptake
- 3) Evaluation of Gavi Health Systems Strengthening Support in the Democratic People 's Republic of Korea (DPRK)
- 4) Assessing the impact of out-of-pocket expenditure on health in Thailand

7. Research completed (*Specify the name of the research work year printed Publication and sources of capital for the past no more than 5 years*)

international work Total 25 projects namely

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- 7) Teerawattananon Y, Tungsanga K, Hakiba S, **Dabak S** . Dispelling the myths of providing dialysis in low-and middle-income countries. *Nature Reviews Nephrology*. 2021 Jan;17(1):11-2.
- 8) Sharma M, Teerawattananon Y, **Dabak SV** , Isaranuwatthai W, Pearce F, Pilasant S, Sabirin J, Mayxay M, Guerrero M, Phuong NK, Sastroasmoro S, Htoo TS. A landscape analysis of health technology assessment capacity in the Association of South-East Asian Nations region. *Health Res Policy Syst*. 2021 Feb 11;19(1):19. doi: 10.1186/s12961-020-00647-0. PMID: 33573676; PMCID: PMC7879649.
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Book chapter

- 22) Teerawattananon Y, Rattanavipapong W, Santatiwongchai B, Bussabawalai T, Thiboonboon K, **Dabak S** . Chapter 17 More Than A List: Reforming a Country's Health Benefit Package-- A Rigorous Approach to Tackle Costly Overutilization. In Glassman A, Giedion U, and Smith P (editors). *What's In, What's Out: Designing Benefits for Universal Health Coverage*. Washington D.C. Brookings, 2017.

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- 23) **Saudamini V. Dabak** , Dian Faradiba, Myka Harun Sarajan, Jirathorn Sutawong, Yot Teerawattananon, Wanrudee Isaranuwatthai. The Question of Booster Vaccines in Low- and Middle-Income Countries. *Think Global Health*. 23 September 2021. Link: <https://www.thinkglobalhealth.org/article/question-booster-vaccines-low-and-middle-income-countries>
- 24) Dian Faradiba, Hwee-Lin Wee, Joseph Babigumira, Miqdad Asaria, **Saudamini Dabak** , Victor del Rio Vilas, Yi Wang, Yu Ting Chen. What works, and how can we make it fairer? Developing new guidance for contact tracing. *LSE Covid-19*. 23 July 2021. Link:

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- 25) Yot Teerawattananon, Kalipso Chalkidou, Raymond Hutubessy, Marelize Gorgens, David Wilson, **Saudamini Dabak** , Sarin KC, Christopher Painter and Thomas Wilkinson. What does the COVID-19 experience teach us about using models for a policy response to pandemics: A perspective from the COVID-19 Multi-model Comparison Collaboration (CMCC). C19economics. 20 April 2021. Link: https://www.c19economics.org/article/cmcc_covidmodels/

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Co-researcher (3rd person)

1. Name - Surname (English) Mrs. Kinanti Khansa Chavarina
2. National identification card number (passport) C6956195
3. educational record (*specify bachelor's degree onwards*)

Year of study - graduation	Degree received	Name of educational institution- country
2021 - 2022	Master of Public Health	National University of Singapore
2013 - 2017	Bachelor of Pharmacy	University of Indonesia

4. Type of professional license (*if any*) None
5. Work experience

period	position	Organization name
25 65 - present	Project Associate	HITAP, Thailand
2019 - 2021	Associate Market Access and Pricing Manager	Novo Nordisk , Indonesia
2019 _	Associate	YCP Solidiance , Indonesia
2018 - 2019	Analyst	YCP Solidiance , Indonesia

6. Experience related to research administration both inside and outside the country

Head of research projects, 4 projects

- 1) Vaccinology for Clinical and Public Health Practice Course and Policy Symposium in Indonesia (May 2023): moderate a plenary session on the topic 'Setting Priorities for New Vaccines'; organize and manage courses related to vaccinology, including health policy, economics, and epidemiology and clinical trials of vaccines.
- 2) National Institute of Health and Care Excellence (NICE) Book chapter: conceptualised, designed the survey, and written a chapter for NICE 25th year anniversary review and reflection.
- 3) A review of Indonesia's revised HTA guideline (March 2023): lead the overall review process, from conceptualisation to manuscript writing. The commentary has been published in the Lancet Southeast Asia and can be accessed [here](#).
- 4) A systematic review of economic evaluations for Indonesia (December 2021): lead the overall research project, from conceptualisation to manuscript writing. The

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original article has been published in the Lancet Southeast Asia and can be accessed [here](#).

 co-researcher, 5 projects

- 1) Case study of **telemedicine** services in India and Singapore (July 2023, funded by WHO-CCS): contributed to designing the study, methods development, data collection, data analysis, and manuscript writing.
 - 2) Cost-effectiveness analysis of integrated care for chronic kidney disease patients (June 2023): contributed to supervising the overall project, reviewed the Markov model, and reviewed the manuscript.
 - 3) Return of Investment of digital supply chain monitoring system for vaccination in Indonesia (May 2023, funded by Access and Delivery Partnership): reviewed a return of investment study conducted by UNDP Indonesia team and suggested improvements before communicating the result to the Ministry of Health Indonesia.
 - 4) A systematic review of economic evaluations of interventions impacting AMR (August 2022): contributed in data analysis and manuscript writing. The original article has been published and can be accessed [here](#).
 - 5) A guide for HTA guideline development (September 2022, collaborated with HTAsiaLink , ISPOR, and HTAi): contributed to data collection , data analysis, and manuscript writing.
7. Research completed (*Specify the name of the research work year printed Publication and sources of capital for the past no more than 5 years*)

international work Total 3 projects namely

- 1) **Chavarina KK** , Faradiba D, Sari EN, Wang Y, Teerawattananon Y. Health economic evaluations for Indonesia: a systematic review assessing evidence quality and adherence to the Indonesian Health Technology Assessment (HTA) Guideline. Lancet Reg Health Southeast Asia. 2023 Mar 31;13:100184 . doi: 10.1016/j.lansea.2023.100184. PMID: 37383554; PMCID: PMC10306002.
- 2) **Chavarina KK** , Faradiba D, Teerawattananon Y. Navigating HTA implementation: a review of Indonesia's revised HTA guideline. Lancet Reg Health Southeast Asia. 2023

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Sep 11;17:100280 . doi: 10.1016/j.lansea.2023.100280. PMID: 37727364; PMCID: PMC10506045.

- 3) Painter, C., Faradiba, D., **Chavarina, KK** . *et al.* A systematic literature review of economic evaluation studies of interventions impacting antimicrobial resistance. *Antimicrob Resist Infect Control* **12** , 69 (2023).
<https://doi.org/10.1186/s13756-023-01265-5>

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Co-researcher (4th person)

1. Name - Surname (Thai language) Miss Jirathorn Sutawong
(English) Miss. Jiratorn Sutawong
2. ID card number 1-5799-00386-42-0
3. educational record (*specify bachelor's degree onwards*)

Year of study - graduation	Degree received	Name of educational institution- country
B.E. 25 60	Nurse practicing kidney replacement therapy	Faculty of Medicine Ramathibodi Hospital Mahidol University
2016 - 2019	Master of Science Office of Anti-Aging and Regenerative Medicine	Mae Fah Luang University
2010 - 2013	Bachelor of Nursing Science	Ramathibodi Nursing School Faculty of Medicine Ramathibodi Hospital Mahidol University

4. Type of professional license (*if any*)
Professional license Nurses and midwives No. 5711251413
5. Work experience

period	position	Organization name
2564 - present	research assistant	Foundation for Health Technology and Policy Assessment
25 64 AD	Practical nurse (dialysis)	Kasemrad Sriburin Hospital
B.E. 25 59 – 2020	Practical nurse (dialysis)	Dialysis Unit, Somdej Phra Debaratana Medical Center Ramathibodi Hospital
B.E. 25 57 – 2016	professional nurse	intensive care unit Somdet Phra Debaratana Medical

		Center Ramathibodi Hospital
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6. Experience related to research administration both inside and outside the country

- Head of research project, 1 project
 - 1) Creating policy recommendations for screening newborns for severe congenital heart disease using a pulse oximeter as a benefit in the national health insurance system.
- co-researcher, 7 projects
 - 1) Studying the feasibility of expanding the remote treatment follow-up system service For patients receiving Cardiac implantable electronic devices (CIEDs)
 - 2) Developing a process for evaluating digital health technology to promote the health service system and the health of the Thai people.
 - 3) Learning process of the working group considering proposals for a list of artificial devices and organs for disease treatment (Instruments)
 - 4) Effective intervention for the screening, brief intervention, referral, and treatment of harmful alcohol use: an umbrella review
 - 5) Developing a filter to assess hesitation in receiving rehabilitation services. Problems with drinking alcoholic beverages
 - 6) Access to care services for people with alcohol drinking problems and related factors
 - 7) evidence synthesis Empirical to make policy recommendations to determine the benefit package of continuous kidney replacement therapy services for critically ill patients with acute kidney failure in Thailand.

7. Research completed (*Specify the name of the research work year printed Publication and sources of capital for the past no more than 5 years.*)

- international work Quantity: 1 project namely
 - 1) Botwright S, **Sutawong J** , Kingkaew P. *et al.* Which interventions for alcohol use should be included in a universal healthcare benefit package? An umbrella review of targeted interventions to address harmful drinking and dependence. *BMC Public Health* 23, 382 (2023). <https://doi.org/10.1186/s12889-023-15152-6>
- National Achievements Quantity: 1 project namely

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- 1) **Sutawong J** , Saeraneesopon T, Isaranuwachai W, Srisawat N. Exploring hospital resources in providing continuous renal replacement therapy. Journal of Health Systems Research 2023 ; 17(2):305-16.

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Co-researcher (5th person)

1. Name - Surname (Thai language) Miss Chulathip Bunma
(English) Miss. Chulathip Boonma

2. ID card number 3-4704-00101-81-5

3. educational record (*specify bachelor's degree onwards*)

Year of study - graduation	Degree received	Name of educational institution- country
2007 - 2009	Master of Public Health	Khon Kaen University
25 44 - 2004	Bachelor of Science	Maharakham University

4. Type of professional license (*if any*) None

5. Work experience

period	position	Organization name
2564 - present	Statistical analyst	Foundation for Health Technology and Policy Assessment
2019 - 2021	Strategic Management Analyst	Bangkok Surat Hospital
2018 - 2019	Monitoring and evaluation academics	Office of the Health Promotion Foundation (Thai Health Promotion Foundation)

6. Experience related to research administration both inside and outside the country

 co-researcher, 5 projects

- 1) The project analyzes the impact of COVID- 19 on the public health system to strengthen the response to the outbreak and the sustainability of the universal health coverage system in Thailand.
- 2) Study of the feasibility of naltrexone and acamprosate for the treatment of alcohol addiction in Thailand.
- 3) Relationship between physical activity and health status of employees at Bangkok Hospital Head Office

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- 4) Reliability of the 30- item Thai version of the Barat's Impulsivity Scale . and 15 questions in people who come for annual health check-ups at Bangkok Hospital Head Office, Phyathai Hospital and Bangkok Hospital Phra Pradaeng
- 5) Status of cardiovascular disease risk among employees of hospitals affiliated with Bangkok Dusit Medical Services Public Company Limited .

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Co-researcher (6th person)

1. Name - Surname (Thai) Miss Panthip Chantama
 (English) Miss. Parntip Juntama

2. ID card number 1-1037-00649-441

3. educational record (*specify bachelor's degree onwards*)

Year of study - graduation	Degree received	Name of educational institution- country
B.E. 2009 - 2014	Bachelor of Pharmacy Branch: Clinical Pharmacy	Silpakorn University
2019 - 2021	Master of Business Administration	Thammasat University

4. Type of professional license (if any) Pharmacy professional license

5. Work experience

period	position	Organization name
2021 - present	research assistant	Foundation for Health Technology and Policy Evaluation
2020 - 2021	Pharmacovigilance	Behringer Ingel Heim (Thailand) Company
2015 - 2019	pharmacist	Faculty of Medicine Ramathibodi Hospital

6. Experience related to research management both inside and outside the country

Co - researcher: 5 projects (*please specify **the name of the project that has been completed***)

- 1) Assessing the cost-effectiveness of genetic code analysis in infants with severe epilepsy. (*Funding source of the Health Systems Research Institute*)
- 2) Cost-utility evaluation and budget impact analysis of Next Generation Sequencing (NGS) technology in patients with acute, idiopathic symptoms. (*Funding source of the Health Systems Research Institute*)

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- 3) Project to review and improve cost-utility analysis of Pneumococcal conjugated vaccine in the Thai context. (*Funding source of the Health Systems Research Institute*)
- 4) Assessing the cost-effectiveness of screening and preventing fractures in elderly and postmenopausal women. (*Funding source: National Health Security Office*)

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Co-researcher (7th person)

1. Name - Surname (Thai language) Miss Ben Champhon Iamsakul
(English) Miss. Benjamaporn Eiamsakul
2. ID card number 1-2299-00804-895
3. educational record (*specify bachelor's degree onwards*)

Year of study - graduation	Degree received	Name of educational institution - country
2017 - 2021	Bachelor's degree in Applied Thai Traditional Medicine	Faculty of Medicine Siriraj Hospital Mahidol University

4. Type of professional license (*if any*) License to be a practitioner of applied Thai traditional medicine. PT . P. 4242
5. Work experience

period	position	Organization name
25 65 – present	research assistant	HITAP
2021 - 2022 _	Applied Thai traditional medicine	Siriraj Hospital

6. Experience related to research administration both inside and outside the country
 - o Head of research project Number.....Projects (*Please specify the name of the project that has been completed*)
 - o Co-researchers, number.....projects (*please specify the name of the project that has been completed*)
7. Completed research (*specify name of research work, year of publication, dissemination, and source of funding for the past no more than 5 years*)
 - o International work Number.....Projects include:
 - o National work Number.....Projects include:

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Co-researcher (external)

- Name - Surname (Thai language) Dr. Jirat Panjit
(English) Mr. Jeerath Phannajit
- ID card number 1-1030-00013-99-4
- educational record (*specify bachelor's degree onwards*)

Year of study - graduation	Degree received	Name of educational institution- country
2022 _	Certificate of Applied Biostatistics	Harvard University United States of America
2022 _	Diploma of Clinical Epidemiology	Thammasat University , Thailand
2018 – 2020 _	TISTR: Kidney Diseases	Chulalongkorn Hospital, Thai Red Cross Society , Thailand
2015 - 2018 _	TISTR Internal Medicine	Chulalongkorn Hospital, Thai Red Cross Society , Thailand
2008 – 2014	Bachelor of Medicine (First class honors)	Faculty of Medicine Chulalongkorn University, Thailand

- Type of professional license (*if any*)
Medical Practice License, Class 1, Medical Council No. W.48079
- Work experience

period	position	Organization name
2020 – present	Special Lecturer / Allied Researcher	Faculty of Medicine Chulalongkorn University
2020 – present	Doctor Level 6 , Head of Clinical Epidemiology	Chulalongkorn Hospital, Thai Red Cross Society
2018 – 2020	Resident doctor expands on kidney medicine	Chulalongkorn Hospital, Thai Red Cross Society

2015 – 25 61	Internal medicine resident doctor	Chulalongkorn Hospital, Thai Red Cross Society
2014 - 25 58	Doctors enhance their skills	Sawan Pracharak Hospital

6. Experience related to research administration both inside and outside the country

Research Project Leader Number 2 project

- 1) Efficacy in reducing protein-bound toxins of Sevelamer in end-stage renal disease patients receiving dialysis and having high blood phosphate levels: a randomized controlled trial (Funding source : Chulalongkorn University) – pending publication in the journal
- 2) Developing a tool to screen for clinical risk of osteoporosis in patients with chronic kidney disease on hemodialysis (Source of funds : Fundamental fund, Thai Red Cross Society, fiscal year 2023) – Currently awaiting publication in the journal.

co-researchers, 31 projects (*details in item 7*)

7. Research completed (*Specify the name of the research work year printed Publication and sources of capital for the past no more than 5 years*)

international work Total 31 projects namely

- 1) Takkavatakarn K, Wuttiathanun T, **Phannajit J** , Praditpornsilpa K, Eiam-Ong S, Susantitaphong P. Protein-bound Uremic Toxins Lowering Strategies in Chronic Kidney Disease: A Systematic Review and Meta-analysis. J Nephrol. 2021 Dec; 34(6) :1805-1817. (Funding source : Chulalongkorn University)
- 2) **Phannajit J** , Takkavatakarn K, Asawavichienjinda T, Tungstanga K, Praditpornsilpa K, Eiam-ong S, Susantitaphong P. Factors Associated with the Incidence and Mortality of Coronavirus Disease 2019 (COVID-19) after 126-million Cases: A Meta-analysis. J Epidemiol Glob Health. 2021 Sep; 11(3):289-295. (Funding source : Chulalongkorn University)
- 3) Takkavatakarn K, Wuttiathanun T, **Phannajit J** , Praditpornsilpa K, Eiam-Ong S, Susantitaphong P. Effectiveness of Fibroblast Growth Factor 23 Lowering Modalities in Chronic Kidney Disease: A Systematic Review and Meta-analysis. Int Urol Nephrol. 2022 Feb ; 54(2):309-321. (Funding source : Chulalongkorn University)

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- 4) - Phannajit J., Wonghakaeo N, Takkavatakarn K, Katavetin P, Asawavichienjinda T, Tungsanga K, Praditpornsilpa K, Eiam-ong S, Susantitaphong P. The Impacts of Phosphate Lowering Agents on Clinical and Laboratory Outcomes in Chronic Kidney Disease Patients: A Systematic Review and Meta-analysis of Randomized Controlled Trials. *Journal of Nephrology*. 2022 Mar; 35(2):473-491. (Funding source : Chulalongkorn University)
- 5) Wattanawasin W, **Phannajit J** , Poosoonthronsri M, Lewsuwan S, Tanateerapong P, Jongthanakorn K ,Takkavatakarn K, Katavetin P, Tiranathanagul K,Eiam-ong S, Susantitaphong P. A Randomized Controlled Trial of Comparative Efficacy between Sodium Bicarbonate and Heparin as A Locking. Solution for Tunneled Central Venous Catheters among Hemodialysis Patients. *Can J Kidney Health Dis* Sep 30 ; 8:20543581211046077 . doi: 10.1177/20543581211046077. (Funding source : Kidney Foundation of Thailand)
- 6) Takkavatakarn K, Puapatanakul P, **Phannajit J** , Sukkumme W, Chariyavilaskul P, Sitticharoenchai P, Leelahavanichkul A, Katavetin P, Praditpornsilpa K, Eiam-Ong S, Susantitaphong P. Protein-Bound Uremic Toxins Lowering Effect of Sevelamer in Pre-Dialysis Chronic Kidney. Disease Patients with Hyperphosphatemia: A Randomized Controlled Trial. *Toxins (Basel)*. 2021 Sep 27 ; 13(10):688. (Funding source : Kidney Foundation of Thailand)
- 7) Sirikalyanpaiboon M, Ousirimaneechai K, **Phannajit J** , Pitisuttithum P, Jantarabenjakul W, Chaiteerakij R, Paitoonpong L. COVID-19 vaccine acceptance, hesitancy, and determinants among physicians in a university-based teaching hospital in Thailand. *BMC Infect Dis*. 2021 Nov 22 ; 21(1):1174. (Funding source : Chulalongkorn University)
- 8) Harirugsakul K, Wainipitapong S, **Phannajit J** , Paitoonpong L, Tantiwongse K. Erectile dysfunction among Thai patients with COVID-19 infection. *Transl Androl Urol*. 2021 Dec; 10(12):4376-4383. (Funding source : Chulalongkorn University)
- 9) Udomkarnjananun S, **Phannajit J** , Takkavatakarn K, Tumkosit M, Kingpetch K, Avihingsanon Y, Praditpornsilpa K, Eiam-Ong S, Susantitaphong P. Effects of phosphate binders on bone biomarkers and bone density in haemodialysis patients. *Nephrology*

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(Carlton). 2022 May . ; 27(5):441-449. (Funding source : Thailand Kidney Foundation / Chulalongkorn University)

- 10) Takkavatakarn K, **Phannajit J** , Udomkarnjananun S, Tangchitthavornkul S, Chariyavilaskul P, Sitticharoenchai P, Praditpornsilpa K, Eiam-Ong S, Susantitaphong P. Association Between Indoxyl Sulfate and Dialysis Initiation and Cardiac Outcomes in Chronic Kidney Disease Patients. *Int J Nephrol Renovasc Dis.* . 2022 Mar 26 ; 15:115 - 126. (Funding source : Thailand Kidney Foundation / Chulalongkorn University)
- 11) Pichitporn W, Kanjanabuch T, **Phannajit J** , Puapatanakul P, Chuengsaman P, Parapiboon W, Treamtrakanpon W, Boonyakrai C, Matayart S, Katavetin P, Perl J, Praditpornilpa K, Eiam-Ong S, Tungsanga K, Johnson DW. Efficacy of Potassium. Supplementation in Hypokalemic Patients Receiving Peritoneal Dialysis: A Randomized Controlled Trial. *Am J Kidney Dis.* 2022 Nov; 80(5):580-588. e 1. (Funding source : Thailand Kidney Foundation / Chulalongkorn University)
- 12) Washrawirul C, Triwatcharikorn J, **Phannajit J** , Ullman M, Susantitaphong P, Rerknimitr P. Global prevalence and clinical manifestations of cutaneous adverse reactions following COVID-19 vaccination: A systematic review and meta-analysis. *J Eur Acad Dermatol Venereol.* 2022 Nov; 36(11):1947-1968. (Funding source : Chulalongkorn University)
- 13) Srichan S, **Phannajit J** , Tungsanga S, Jaimcharyatam N. The NH-OSA Score in Prediction of Clinically Significant Obstructive Sleep Apnea Among Thai Population: Derivation and Validation Studies. *Sleep Breath.* 2022 Jul 27. doi: 10.1007/ s 11325-022-02642- x. (Source of funds : Chulalongkorn University)
- 14) Purisinsith S, Kanjanabuch P, **Phannajit J** , Kanjanabuch T, et al. Oral Health-Related Quality of Life (OHRQoL), A Proxy of Poor Outcomes in Patients on Peritoneal Dialysis. *Kidney Int Rep.* 2022 Aug 6;7(10): 2207-2218. (Funding source : Chulalongkorn University)
- 15) Harirugsakul K, Wainipitapong S, **Phannajit J** , Paitoonpong L, Tantiwongse K. Erectile dysfunction after COVID-19 recovery: A follow-up study. *PLoS One.* 2022 Oct 20 ; 17(10): e 0276429. (Funding source : Chulalongkorn University)
- 16) Banjongjit A, Phirom S, **Phannajit J** , Jantarabenjakul W, Paitoonpong L, Kittanamongkolchai W, Wattanatorn S, Prasithsirikul W, Eiam-Ong S, Avihingsanon Y,

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Hansasuta P, Vanichanan J, Townamchai N. Benefits of Switching Mycophenolic Acid to Sirolimus on Serological. Response after a SARS-CoV-2 Booster Dose among Kidney Transplant Recipients: A Pilot Study. *Vaccines (Basel)*. 2022 Oct 9 ; 10(10):1685. (Funding source : Chulalongkorn University)

- 17) Phirom S, **Phannajit J** , Jantarabenjakul W, Paitoonpong L, Kitrunghaiboon T, Choktaweesak N, Kupatawintu P, Wattanatorn S, Prasithsirikul W, Eiam-Ong S, Avihingsanon Y, Hansasuta P, Vanichanan J, Townamchai N. Comparison of the Immune Response After an Extended Primary Series of COVID-19 Vaccination in Kidney Transplant Recipients Receiving Standard Versus Mycophenolic Acid-sparing Immunosuppressive Regimen. *Transplant Direct*. 2022 Oct 25 ; 8(11): e 1393. (Funding source : Chulalongkorn University)
- 18) Tran PNT, Kusirisin P, Kaewdountien P, **Phannajit J** , Srisawat N. Higher blood pressure versus normotension targets to prevent acute kidney injury: a systematic review and meta-regression of randomized controlled trials. *Crit Care*. 2022 Nov 25 ; 26(1) :364. doi: 10.1186/ s 13054-022-04236-1. (Funding source : Chulalongkorn University)
- 19) Greeviroj P, Lertussavavivat T, Thongsricome T, Takkavatakarn K, **Phannajit J** , Avihingsanon Y, Praditpornsilpa K, Eiam-Ong S, Susantitaphong P. The world prevalence, associated risk factors and mortality of hepatitis C virus infection in hemodialysis patients: a meta- analysis. *J Nephrol*. 2022 Dec; 35(9):2269-2282. (Funding source : Chulalongkorn University)
- 20) Tokavanich N, Prasitlumkum N, Kewcharoen J, Chokesuwattanaskul R, **Phannajit J** , Cheungpasitporn W, Akoum N, Ranjan R, Bunch TJ, Navaravong L. Network meta-analysis and systematic review comparing efficacy and safety between very high power short duration, high power. short duration, and conventional radiofrequency ablation of atrial fibrillation. *J Cardiovasc Electrophysiol*. 2023 Jan 24.
- 21) Takkavatakarn K, Thammathiwat T, **Phannajit J** , Katavetin P, Praditpornsilpa K, Eiam-Ong S, et al. The impacts of hypoxia-inducible factor stabilizers on laboratory parameters and clinical outcomes in chronic kidney disease patients with renal anemia: a systematic review and meta-analysis. *Clinical Kidney Journal* 2023: sfac 271 , Jan 24. (Funding source : Chulalongkorn University)

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- 22) **Phannajit J** , Lertussavavivat T, Srisawat N, et al. Long-term kidney outcomes after leptospirosis: A prospective multicenter cohort study in Thailand. *Nephrol Dial Transplant*. 2023 Feb 6;38(2):300-307. (Funding source : Chulalongkorn University)
- 23) Takkavatakarn K, Thammathiwat T, **Phannajit J** , Katavetin P, Praditpornsilpa K, Eiam-Ong S, Susantitaphong P. The impacts of hypoxia-inducible factor stabilizers on laboratory parameters and clinical outcomes in chronic kidney disease patients with renal anemia: a systematic review and meta-analysis. *Clin Kidney J*. 2023 Jan 24;16(5):845-858. (Source of funds : Chulalongkorn University)
- 24) Naiyaraksee N, **Phannajit J***, Naiyaraksee W, Mahatanan N, Asavapujanamanee P, Lekhyananda S, et al. Effect of Menaquinone-7 Supplementation on Arterial Stiffness in Chronic Hemodialysis Patients: A Multicenter Randomized Controlled Trial. *Nutrients*. 2023;15:2422 . (as corresponding autor) (Funding source : Kidney Foundation of Thailand / Chulalongkorn University)
- 25) Boongird S, **Phannajit J** , Kanjanabuch T, Chuengsaman P, Dandecha P, Halue G, Lorvinitnun P, Boonyakrai C, Treamtrakanpon W, Tatiyanupanwong S, Lounseng N, Perl J, Johnson DW, Pecoits-Filho R, Sritippayawan S, Tungsanga K, Kantachavesiri S, Ophascharoensuk V; Thailand PDOPPS Steering Committee and Advisory Board of Peritoneal Dialysis, The Nephrology Society of Thailand. Enhancing healthcare quality and outcomes for peritoneal dialysis patients in Thailand: An evaluation of key performance indicators and PDOPPS cohort representativeness. *Nephrology (Carlton)* . 2023 Aug;28 Suppl 1:14-23. doi: 10.1111/nep.14204. (Funding source : Kidney Foundation of Thailand)
- 26) Halue G, Tharapanich H, **Phannajit J** , Kanjanabuch T, Banjongjit A, Lorvinitnun P, Sritippayawan S, Sopassathit W, Poonvivatthachai U, Buranaosot S, Somboonsilp W, Wongtrakul P, Boonyakrai C, Narenpitak S, Tatiyanupanwong S, Saikong W, Uppamai S , Panyatong S, Chieochanthanakij R, Lounseng N, Wongpiang A, Treamtrakanpon W, Rattanasoonton P, Lukrat N, Songviriyavithaya P, Parinyasiri U, Rojsanga P, Kanjanabuch P, Puapatanakul P, Pongpirul K, Johnson DW, Perl J, Pecoits-Filho R , Ophascharoensuk V, Tungsanga K; Thailand PDOPPS Steering Committee. Constipation and clinical outcomes in peritoneal dialysis: Results from Thailand

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PDOPPS. Nephrology (Carlton). 2023 Aug;28 Suppl 1:35-47. doi: 10.1111/nep.14224. (Funding source : Kidney Foundation of Thailand)

- 27) Theerasuwipakorn N, Chokesuwattanaskul R, **Phannajit J** , Marsukjai A, Thapanasuta M, Klem I, Chattranukulchai P. Impact of late gadolinium-enhanced cardiac MRI on arrhythmic and mortality outcomes in nonischemic dilated cardiomyopathy: updated systematic review and meta-analysis. Sci Rep. 2023 Aug 23;13(1):13775. doi: 10.1038/s41598-023-41087-4. (Funding source : Chulalongkorn University)
- 28) Greeviroj P, Puapatanakul P, **Phannajit J** , Takkavatakarn K, Kittanamongkolchai W, Boonchaya-Anant P, Katavetin P, Praditpornsilpa K, Eiam-Ong S, Susantitaphong P. Effect of canagliflozin in non-diabetic obese patients with albuminuria: A randomized, double-blind, placebo-controlled trial. Clin Nephrol. 2023 Sep 7. doi: 10.5414/CN111143. (Funding source : Chulalongkorn University)
- 29) Phuensan P, Sirimongkolkasem J, Tantawichien T, **Phannajit J**, Kerr SJ, Hansasuta P, Chantharit P, Wongsas A, Fuengfoo P, Chittinandana A, Vareesangthip K, Chayakulkeeree M, Jangsirikul S, Schmidt A, Wanvimonsuk K, Winichakoon P, Kajeekul R. , Prayoonwiwat W, Rerknimitr R. Immunogenicity and safety of heterologous versus homologous prime-boost schedules with inactivated and adenoviral vectored SARS-CoV-2 vaccines - A prospective multi-center study. Heliyon. 2023 Dec 3;10(1):e 23246 . doi: 10.1016/j.heliyon.2023.e 23246. (Funding source : Royal College of Physicians of Thailand)
- 30) Takkavatakarn K, Jintanapramote K, **Phannajit J** , Praditpornsilpa K, Eiam-Ong S, Susantitaphong P. Incremental versus conventional haemodialysis in end-stage kidney disease: a systematic review and meta-analysis. Clin Kidney J. 2023 Nov 8;17(1):sfad 280. doi: 10.1093/ckj/sfad280. (Funding source : Chulalongkorn University)
- 31) Wathanavasin W, Banjongjit A, Phannajit J, Eiam-Ong S, Susantitaphong P. Association of fine particulate matter (PM2.5) exposure and chronic kidney disease outcomes: a systematic review and meta-analysis. Sci Rep. 2024 Jan 10;14 (1):1048. doi: 10.1038/s41598-024-51554-1. (Funding source : Chulalongkorn University)

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Co-researcher (external)

1. Name - Surname (Thai) Dr. Wirun Limsawat, M.D.
 (English) Dr. Wirun Limsawat

2. educational record (*specify bachelor's degree onwards*)

Year of study - graduation	Degree received	Name of educational institution- country
2022 _	Diploma, Preventive Medicine (Public Health)	The Medical Council of Thailand
2018 _	Doctor of Philosophy, Social Anthropology	Harvard University, USA
2012 _	Master of Art, Medical Anthropology	Harvard University, USA
2006 _	Mini-Master of Management in Health	ASEAN Health Development Institute Mahidol University
2001 _	Doctor of Medicine	Faculty of Medicine Siriraj Hospital Mahidol University

3. Work experience

period	position	Organization name
2564 - present	Director	Society and Health Institute, Ministry of Public Health, Thailand
2019 - present	Director	National Archives of Public Health, Ministry of Public Health, Thailand
2019 - present	Researcher	International Health Policy Program (IHPP), Thailand
2019 - present	Core-team member & co-founder	Thailand Clean Air Network
2008 - present	Researcher	Society and Health Institute, Ministry of Public Health, Thailand
2007 - 2009	Vise-Secretary General	Rural Doctor Foundation

period	position	Organization name
2005 - 2008	Director	Chawang Crown Prince Hospital, Nakhon Si Thammarat
2002 - 2008	Director	Thampannara Community Hospital, Nakhon Si Thammarat
25 44 - present	Medical Doctor	Ministry of Public Health, Thailand

4. Experience related to research administration both inside and outside the country

Head of research projects, 6 projects

- 1) A Chronicle of COVID- 19. Nonthaburi: National Archives of Public Health, Ministry of Public Health. (2020)
- 2) PM 2.5 People's Manual: 10 Issues to Know to Confidently Fight Against PM 2.5. Nonthaburi: Ministry of Public Health. (2020)
- 3) Clean Air White Paper. Bangkok: Thailand Clean Air Network. (2019)
- 4) An Incident in Khon Kaen: When Hospital Staff Make Mistake but Patients Wish for Them. Nonthaburi: Human Resources for Health Research and Development Office. (2010)
- 5) Road to Reconciliation in Health Care System. Nonthaburi: National Health Commission Office. (2009)
- 6) Conflict in Doctor-Patient Relationship: Situation and Policies Recommendations, A Policy Paper presented to the National Health Commission. Nonthaburi: National Health Commission Office. (2008)

 co-researcher, 2 projects

- 1) A Guideline for Community Strengthening for COVID- 19 Surveillance and Control. Nonthaburi: National Health Commission Office. (2021)
- 2) Idealism Never Disappears: Experiences of Rural Doctor Society. Bangkok: Rural Doctor Foundation. (2004)

5. Research completed (*Specify the name of the research work year printed Publication and sources of capital for the past no more than 5 years*)

international work Total 4 projects namely

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- 1) Zinboonyahgoon N, Srisuma S, **Limsawart W** , Rice ASC, Suthisisang C. Medicinal cannabis in Thailand: 1- year experience after legalization. Pain. 2021 Jul 1 ; 162(Suppl 1): S 105- S 109. doi: 10.1097/ j.pain. 0000000000001936. PMID: 33009244.
- 2) Lertrattanon, D., **Limsawart, W** ., Dellow, A. et al. Does medical training in Thailand prepare doctors for work in community hospitals? An analysis of critical incidents. Hum Resour Health 17, 62 (2019). <https://doi.org/10.1186/s12960-019-0399-8>
- 3) Chuengsatiansup, K., **Limsawart, W** . Tuberculosis in the borderlands: migrants, microbes and more-than-human borders. Palgrave Commun 5, 31 (2019). <https://doi.org/10.1057/s41599-019-0239-4>
- 4) **Wirun Limsawart** , (2018). Health Care on the Border: Professional Caregiving, Universal Health Security, and Tuberculosis Control in Thailand and Its Border with Myanmar. PhD Dissertation. Department of Anthropology. Harvard University.

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Co-researcher (external)

1. Name - Surname (Thai language) Miss Thanainan Chuanchaiyakul
(English) Miss. Tanainan Chuanchaiyakul

2. ID card number 1-1037-01670-77-1

3. educational record (*specify bachelor's degree onwards*)

Year of study - graduation	Degree received	Name of educational institution- country
2017 - 2019	Master's degree Social and Behavioral Sciences field	Tilburg University, Netherlands
2013 - 2017	Bachelor's degree Major : Psychology / Economics	University of Oregon, USA

4. Type of professional license (*if any*) None

5. Work experience

period	position	Organization name
25 66 - present	Research fellow	HITAP
2022 - 2022	Researcher	Thailand Development Research Institute (TDRI)
2021 - 2022	Data scientist	Faculty of Medicine Siriraj Hospital Mahidol University

6. Experience related to research administration both inside and outside the country

Research Project Leader Number - Projects

Co-researchers Number - Project

7. Research completed (*Specify the name of the research work year printed Publication and sources of capital for the past no more than 5 years*)

International work Quantity - Project namely

national performance Quantity - Project namely

Co-researcher (external)

1. Name - Surname (Thai language) Miss Natcha Yongpipatwong
(English) Miss. Natcha Yongphiphatwong

2. ID card number 1-1020-03129-09-7

3. educational record (*specify bachelor's degree onwards*)

Year of study - graduation	Degree received	Name of educational institution- country
2021 - 2022	Master's degree Sociology major	University of Oxford, UK
2018 - 2021	Bachelor's degree Department of Philosophy, Economics and Politics	University of Oxford, UK

4. Type of professional license (*if any*) None

5. Work experience

period	position	Organization name
2564 - present	Researcher	Thailand Development Research Institute (TDRI)

6. Experience related to research administration both inside and outside the country

Research Project Leader Number - Projects

Co-researcher, 2 projects

1) Government procurement project to support innovation Passed the Thai innovation accounting measures

2) Project to reduce health inequalities by increasing access to medical devices and digital platforms

7. Research completed (*Specify the name of the research work year printed Publication and sources of capital for the past no more than 5 years.*)

International work Quantity - Project namely

National work Quantity: 1 project namely

1) TDRI Quarterly Review, Volume 38 Number 3 , September 2023 , by Dr. Srawooth Paitoonpong, Natcha Yongphiphatwong, 36 pp.

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Co-researcher (external)

1. Name - Surname (Thai) Miss Juthamas Piyawong
 (English) Miss. Jutamas Piyawong

2. ID card number 1-1007-01466-44-5

3. educational record (*specify bachelor's degree onwards*)

Year of study - graduation	Degree received	Name of educational institution- country
2020 - present	Master's degree in Sociology and Anthropology	Chulalongkorn University
2014 - 2018	Bachelor's degree in Anthropology	Silpakorn University

4. Type of professional license (*if any*) None

5. Work experience

period	position	Organization name
2023 - present _ _	Researcher	Office of Social and Health Research
B.E. 256 4 -256 5	Research assistant	Office of Social and Health Research
B.E. 256 4 -256 5	Research assistant	Office of Social and Health Research
2017-2021 _	Research assistant and coordinator	Office of Social and Health Research
2019-2020 _	Research assistant	Office of Social and Health Research
2017-2018 _	Researcher	Silpakorn University

6. Experience related to research administration both inside and outside the country

Co-researchers: 8 project

1) Individual study report “ Irrigation fan politics : management of the Ban Na Mu Mon resource base Case study of Ban Na Mu Mon, Na Di Subdistrict, Dan Sai

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District, Loei Province. ” With the support of the office Research Support Fund (NRCT)

- 2) Project “ Stateless Tuberculosis and Borderless Labor: Sociocultural Dimensions of Tuberculosis In the context of the development of the ASEAN Economic Community and health security in Thailand ” 2018-2019
 - 3) Project : A Global Interdisciplinary Research Hub. Supported by the London School of Hygiene and Tropical Medicine, Mahidol University and Society and Health Institute.
 - 4) Project “ Developing indicators and preparing a report on the desired health system situation in Thailand according to the National Health System Statute Topic: Health System Administration ”
 - 5) Project “ Assessing the performance according to the National Health Act 2007 and applying the concept of every health care policy in Thailand ”
 - 6) Project to study social and cultural dimensions and develop appropriate and effective measures to prevent the spread of COVID-19. For vulnerable groups in slums in urban areas
 - 7) Project to develop a mechanism for monitoring and driving the operations of the PWA. “ Building a team of innovators Local health insurance Happy space Local - Prathom Kham Kham PorTor. support
 - 8) Project: Strengthening community health systems in preparing for and responding to public health emergencies.
7. Research completed (*Specify the name of the research work year printed Publication and sources of capital for the past no more than 5 years*)
- International works Quantity: 1 project namely
 - 1) Project : A Global Interdisciplinary Research Hub. Supported by the London School of Hygiene and Tropical Medicine, Mahidol University and Society and Health Institute.
 - National work Total 6 projects namely
 - 1) Project “ Stateless Tuberculosis and Borderless Labor: Sociocultural Dimensions of Tuberculosis In the context of the development of the ASEAN Economic Community and health security in Thailand ” 2018-2019

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- 2) Project “ Developing indicators and preparing a report on the desired health system situation in Thailand according to the National Health System Statute Topic: Health System Administration ”
- 3) Project “ Assessing the performance according to the National Health Act 2007 and applying the concept of every health care policy in Thailand ”
- 4) Project to study social and cultural dimensions and develop appropriate and effective measures to prevent the spread of COVID-19. For vulnerable groups in slums in urban areas
- 5) Project to develop a mechanism for monitoring and driving the operations of the PWA. “ Building a team of innovators Local health insurance Happy space Local - Prathom Kham Kham PorTor. support
- 6) Project: Strengthening community health systems in preparing for and responding to public health emergencies.

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Co-researcher (external)

1. Name - Surname (Thai language) Miss Supitcha Thitchue
 (English) Miss. Supichcha Thitjuea

2. ID card number 1-1042-00204-23-9

3. educational record (*specify bachelor's degree onwards*)

Year of study - graduation	Degree received	Name of educational institution- country
2019 - 2023	Bachelor's degree, Bachelor of Social Work	Thammasat University

4. Type of professional license (*if any*) None

5. Work experience

period	position	Organization name
October 2023 - present	Research assistant	Office of Social and Health Research
February - April 2023	apprentice	Sanphaeng Company Social Enterprise Co., Ltd.
December 2022 - January 2023	Social work intern	Andaman Foundation
June - July 2022	Social work intern	Yadfon Disabled Persons' Potential and Career Development Center, Chiang Mai Province

6. Experience related to research administration both inside and outside the country

Co-researcher, 2 projects

1) appropriate and effective measures to prevent the spread of COVID- 19 . For vulnerable groups in slums in urban areas

2) Project to strengthen community health systems in preparing and responding with a public health emergency

7. Research completed (*Specify the name of the research work year printed Publication and sources of capital for the past no more than 5 years*)

National work Quantity: 1 project namely

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- 1) Project to study the social and cultural dimensions and develop measures to prevent the spread of outbreak of COVID-19 that is appropriate and effective for vulnerable groups in slum communities in urban area

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2. Wong CKH, Chen J, Fung SKS, Mok M, Cheng YL, Kong I, et al. Lifetime cost-effectiveness analysis of first-line dialysis modalities for patients with end-stage renal disease under peritoneal dialysis first policy. *BMC Nephrol*. 2020;21(1):42.
3. Global Burden of Disease (GBD) 2019 [Internet]. 2019 [cited 19 June 2023]. Available from: <http://www.healthdata.org/gbd/2019>.
4. Dodd R, Palagyi A, Guild L, Jha V, Jan S. The impact of out-of-pocket costs on treatment commencement and adherence in chronic kidney disease: a systematic review. *Health Policy Plan*. 2018;33(9):1047-54.
5. Chuengsaman P, Kasemsup V. PD First Policy: Thailand's Response to the Challenge of Meeting the Needs of Patients With End-Stage Renal Disease. *Semin Nephrol*. 2017;37(3):287-95.
6. Sumriddetchkajorn K, Shimazaki K, Ono T, Kusaba T, Sato K, Kobayashi N. Universal health coverage and primary care, Thailand. *Bull World Health Organ*. 2019;97(6):415-22.
7. Kanjanabuch T, Takkavatakarn K. Global Dialysis Perspective: Thailand. *Kidney360*. 2020;1(7):671-5.
8. Teerawattananon Y, Tangcharoensathien V. Designing a reproductive health services package in the universal health insurance scheme in Thailand: match and mismatch of need, demand and supply. *Health Policy Plan*. 2004;19 Suppl 1:i31-i9.
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11. Prakongsai P, Palmer N, Uay-Trakul P, Tangcharoensathien V, Mills A. The Implications of Benefit Package Design: The Impact on Poor Thai Households of Excluding Renal Replacement Therapy. *Journal of International Development*, Forthcoming. 2009.

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