วารสารวิชาการสาธารณสุข
ปีที่ 31 ฉบับเพิ่มเติม 2 กรกฎาคม - สิงหาคม 2565

Journal of Health Science
Vol. 31 Supplement 2, July - August 2022

นิพนธ์ต้นฉบับ

Original article

A Comparative Study of the First and Second Waves of the COVID-19 Pandemic Response in Thailand

Watcharaporn Chutarong, MTCSOL*
Weiwen Zhang, Ph.D. (Environmental Economics)*
Chinnawat Koetwibun, B.Eng. (Industrial Engineering)**
* *School of Public Affairs, Zhejiang University, Hangzhou, China*
** *Nakhonratchasima Technical College, Nakhon Ratchasima, Thailand*

Date received: 2022 Jan 24
Date revised: 2022 Apr 11
Date accpeted: 2022 Apr 21

Abstract This research studied the role of the Thai government in addressing a public health emergency using prevention and control measures for COVID-19, and provided an analysis of the results of using these measures. The methods include: (1) recording and monitoring the number of COVID-19 confirmed cases, recovered cases, and fatalities in Thailand from 1 January 2020, to 2 April 2021, from data obtained from the Center for COVID-19 Situation Administration (CCSA); (2) study on prevention and control measures for COVID-19 as set out in the regulations No.1 to No.18; and (3) comparison of the first and second waves of COVID-19 pandemic response. The results found that Thailand started to apply the outbreak response measures early. During the first wave of the COVID-19 pandemic response, Thailand implemented strict lockdown measures, which were ordered to become effective in all areas of the country. With appropriate approaches to the situation, Thailand could control the COVID-19 pandemic effectively at the first wave response. Cumulative confirmed cases in the first wave of the COVID-19 pandemic were less than that of the second wave. During the second wave, Thailand put focus on the balance between disease control and economic recovery, which highlighted the use of COVID-19 zoning areas together with integrated control measures. In addition, the Thai Government began to distribute vaccines to the public. The total number of deaths was less than in the first wave; and there were more recovered cases. In summary, Thailand's response to the COVID-19 pandemic using specific prevention and control measures for COVID-19 was appropriate for the situation in each period. Thailand could reduce and control new confirmed cases per day in the first wave, and could reduce death cases and increase total recovered cases in the second wave.

***Keywords*: COVID-19; COVID-19 Response; prevention and control measures; infectious disease control; Thailand**

Introduction

Coronavirus disease 2019 (COVID-19) is an emerging infectious disease (EID) that swiftly led to worldwide public health crises.[1] The COVID-19 pandemic has been severely affecting human health and the global economy.[2] Confirmed cases have continued to rise exponentially across the world. The number of cumulative COVID-19 confirmed cases has dramatically increased at the national, regional, and global levels.

An epidemic is considered as a kind of "biological related disasters".[3] It is a sudden emergency event that seriously disrupts health, society, and economy. The four phases of "emergency management cycle", "the comprehensive emergency management approach", or "disaster management cycle", includes measures of mitigation, preparedness, response, and recovery.[4-6] Produced by the WHO, "a framework for global outbreak alert and response" focuses on how to alert and respond to emerging outbreaks.[7] The "response" part is a phase that occurs immediately after the disaster, which focuses on how to respond after the disaster has already occurred. It has a particularly important role that focuses attention on addressing the immediate threats to people, property, businesses, and organizations.[8]

An outbreak of COVID-19 is a national concern that requires immediate intervention and control, with efforts needed to save lives and prevent further damage to the economy. It starts with the systematic and efficient management of "Good Governance" with a clear direction toward achieving the goal.[9] "Digital government" is a strategic tool for public management to effectively provide services between government and the public, using "information and communication technologies (ICT)", disclosure of information from government organizations to the public, of which people can access government information through any platform or device anytime and anywhere, to build engagement of all sectors.[10] "Good governance" with using "digital government" and "information and communication technologies" (ICT) is a tool for COVID-19 pandemic response, to deliver public services.[11]

The Ministry of Public Health of Thailand reported the first case of COVID-19 on 13 January 2020.[12] It spread to many areas after this initial detection. In January 2020, Bangkok (Thailand) was ranked the most at-risk city for the global spread of COVID-19.[13] This was due to the estimated mean of basic reproductive rate, or R_0, for COVID-19 is being largely consistent within a range of 2 to 4.[14-16] Note that SARS-CoV-2 is the virus that causes COVID-19 to spread rapidly.[17] The impacts of COVID-19 preventive measures bear a great significance on health, society, and the economy. The decision-making process of emergency management at every step is a critical component in COVID-19 response and recovery. The effective measures that support economic recovery are a current challenge for the government.

To study on how Thailand respond to the COVID-19 pandemic in the first and second waves with using prevention and control measures for COVID-19, this study compared the first and second waves of the COVID-19 pandemic response and summarizes the prevention and control measures for COVID-19 deployed by the government during that time. The

experiences on COVID-19 response in Thailand could be an example for combating any further wave of COVID-19 infections that may arise in the future.

Methods

Data Collection

This research observed the COVID-19 pandemic in Thailand from 1 January 2020 to 2 April 2021; and studied the response focusing on prevention and control measures as set out in the regulations No.1 to No.18 issued under Section 9 of the Emergency Decree on Public Administration in Emergency Situations B.E. 2548 (2005).[18-19] Data on the number of daily COVID-19 cases were obtained from the Center for COVID-19 Situation Administration (CCSA), and aggregated data from some official government websites publicly available.

Statistical Analysis

This research began with collecting the daily data on COVID-19 cases which included the numbers of confirmed cases, cumulative confirmed cases, new deaths, total deaths, new recovered cases, and total recovered cases. Secondly, it also compared the cumulative confirmed cases, total deaths, and total recovered cases of the first and second waves of the COVID-19 pandemic in Thailand. The results were analyzed using Minitab statistical software.

Results

At the beginning of the COVID-19 epidemic, Thailand announced Emergency Decree, which implemented lockdown measures, effective to all areas in the country (Table 1). In responding to the second wave of the COVID-19 outbreak, Thailand highlighted the use of COVID-19 zoning areas, with integrated control measures, and used easing of restrictions mixed with soft lockdown, so as to prevent and control the disease.

To compare the proportion of cumulative confirmed cases, death cases, and recovered cases of first and second waves of the COVID-19 pandemic, this research used the total number of resident Thai citizen population, international tourist arrivals to Thailand, and the number of foreign workers as the total population of Thailand (Table 2). The data were obtained from Thailand Board of Investment, Ministry of Tour-

Table 1 Comparison of the major COVID-19 response measures between the first and second waves of the COVID-19 pandemic in Thailand

Time	Regulations	The major COVID-19 response measures or the implementations	Effect from
The first wave	No.1	1. Prohibition of entry into risk areas	26 March 2020
		2. Closure of places that are risk-prone to the transmission of the disease	
		3. Closure of point of entry into the Kingdom	
		4. Prohibition of the hoarding of goods	
		5. Prohibition of the assembly of persons	
		6. Presentation of news	
		7. Preparedness measures	
		8. Measures to be followed by certain categories of people	
		9. Measures concerning the departure from the Kingdom	

Table 1 Comparison of the major COVID-19 response measures between the first and second waves of the COVID-19 pandemic in Thailand (Cont.)

Time	Regulations	The major COVID-19 response measures or the implementations	Effect from
The first wave	No.1	10. Measures to maintain public order	26 March 2020
		11. Disease prevention measures	
		12. Policy to keep places opened	
		13. Cross-provincial travel advice	
		14. Advice on the organization of other activities	
		15. Penalties	
		16. Enforcement	
	No.2	1. A nationwide Curfew of 22.00-4.00 hrs	3 April 2020
		2. Following the stricter conditions or orders in some areas	
		3. Providing isolated places	
	No.3	Exceptions to curfew	10 April 2020
	No.4	Declaration of emergency to be extended	1 May 2020
	No.5	1. Declaration of a nationwide curfew of 23.00-4.00 hrs and exception to curfew in Regulation No.3 to be extended	3 May 2020
		2. Prohibition or limitation on conducting or carrying out certain activities under the emergency decree and other relevant laws	
		3. Limitation of religious activities	
		4. Recommendation to refrain from cross-provincial travels	
	No.6	1. Relaxation of prohibitions or limitations on conducting or carrying out certain activities	3 May 2020
		2. The duty and responsibility of the owners or managers of all types of places under Regulation No.6 (maintaining the cleanliness of places, containers, and equipment used, and implementing disease prevention measures)	
	No.7	1. Declaration of a nationwide curfew of 23.00-4.00 hrs and exception to CURFEW in Regulation No.3 to be extended	17 May 2020
		2. Relaxation of the prohibition of using buildings in schools or educational institutions	
		3. Relaxation of prohibitions or limitations on conducting or carrying out certain activities	
		4. Implementation of disease prevention measures and setting up of orderly arrangements	
		5. The orders of the governor of Bangkok and provincial governors (closing bullfighting arenas, fish fighting arenas, or other competition venues similarly)	
	No.8	Implementation of the election in Lampang	29 May 2020
	No.9	1. Declaration of a nationwide curfew of 23.00-3.00 hrs and exception to CURFEW in Regulation No.3 to be extended	1 June 2020
		2. Relaxation of the prohibition of using buildings in schools or educational institutions	
		3. Relaxation of prohibitions or limitations on conducting or carrying out certain activities	
		4. Implementation of Disease Prevention Measures and Setting up of Orderly Arrangements	
		5. Relaxation of cross-provincial travels	
	No.10	Declaration to lift night curfew and declaration of emergency to be extended	15 June 2020

Table 1 Comparison of the major COVID-19 response measures between the first and second waves of the COVID-19 pandemic in Thailand (Cont.)

Time	Regulations	The major COVID-19 response measures or the implementations	Effect from
	No.11	Declaration of more easing COVID-19 restrictions	1 July 2020
	No.12	Declaration of more easing COVID-19 restrictions	1 July 2020
	No.13	1. The organization of group activities	1 August 2020
		2. Additional opening for the operation of places and activities	
		3. Additional determination of travelers entering into the Kingdom	
		4. Implementation of disease prevention measures	
	No.14	1. Opening for the operation of places, businesses, and activities	1 September 2020
		2. Implementation of disease prevention measures	
The second wave	No.15	1. Prohibition of use or entry into areas that are risk-prone to the transmission of the disease	25 December 2020
		2. Closure of places that are risk-prone to the transmission of the disease	
		3. Prohibition of the assembly of persons	
		4. Measures for the travel and movement of foreign workers	
		5. The implementation and enforcement of disease prevention measures	
		6. Coordination	
	No.16	1. Prohibition of use of buildings or places that are risk-prone to the spread of the disease	4 January 2021
		2. Prohibition to conduct activities that are risk-prone to the spread of the disease	
		3. Closure of premises that are risk-prone to the spread of the disease	
		4. Conditions for the opening for operation	
		5. Appropriate measures according to the situation in each area	
		6. Screening measures for cross-provincial travel	
	No.17	1. Intensifying the enforcement of disease prevention measures	7 January 202
		2. Elevating the maximum COVID-19 control zone	
		3. Suppressing and punishing	
		4. Punishment	
	No.18	1. Designation of COVID-19 zoning areas: (1) maximum and strict COVID-19 control zone; (2) maximum COVID-19 control zone; (3) COVID-19 control zone, COVID-19 high surveillance zone, and COVID-19 surveillance zone	1 February 202
		2. The use of buildings of schools and educational institutions	
		3. Integrated control measures necessary for the maximum and strict COVID-19 control zone, the maximum COVID-19 control zone, the COVID-19 control zone, the COVID-19 high surveillance zone, and the COVID-19 surveillance zone	
		4. Strict control of places or activities risk-prone to cluster infection of the disease	
		5. Measures for the travel and movement of foreign workers	
		6. Measures appropriate to the situation in each area	
		7. Implementation of disease prevention measures	

Table 2 Comparison of characteristics between the first and second waves of the COVID-19 pandemic.

Time period of COVID-19 Pandemic	First wave (cases) 15 March – 19 December 2020	Second wave (cases) 20 December 2020 – 2 April 2021
Population in Thailand (n)		
- Thailand population	66,186,727	66,186,727
- International Tourist Arrivals to Thailand	830,251	35,257
- Foreign workers	2,512,328	2,289,902
- Total	69,529,306	68,511,886
Cumulative confirmed cases	4,249	24,616
Total deaths	59	34
Total recovered cases	3,989	23,582

Remark: This study used the same number of Thailand population in both the first and the second waves due to unavailability of the 2021 data which were not released until the end of the year 2021.

Table 3 Comparison of test and CI for two proportions of cumulative confirmed cases, total deaths, and total recovered cases

	Test	Results
1. Cumulative confirmed cases	1. Sample p	
	- Sample 1 (X = 4249, N = 69529306)	0.000061
	- Sample 2 (X = 24616, N = 68511886)	0.000359
	2. Estimate for difference	-0.000298
	3. 95%CI for difference	(-0.000303, -0.000293)
	4. Z	-120.52
	5. p-value	<0.001
2. Total deaths	1. Sample p	
	- Sample 1 (X = 59, N = 4249)	0.013886
	- Sample 2 (X = 34, N = 24616)	0.001381
	2. Estimate for difference	0.012504
	3. 95%CI for difference	(0.008955, 0.016053)
	4. Z	13.28
	5. p-value	<0.001
3. Total recovered cases	1. Sample p	
	- Sample 1 (X = 3989, N = 4249)	0.938809
	- Sample 2 (X = 23582, N = 24616)	0.957995
	2. Estimate for difference	-0.019186
	3. 95%CI for difference	(-0.026816, -0.011556)
	4. Z	-5.58
	5. p-value	<0.001

ism, and Department of Employment.[20-24] Results of the comparison between the first and second waves of COVID-19 pandemic response in Thailand are shown in Table 3.

The results of the comparison between the national response to the first and the second waves were as follow:

1) The cumulative confirmed cases:

The proportion of confirmed cases in the first wave of the COVID-19 pandemic was lower than that of the second wave ($p<0.05$).

2) The total deaths:

The proportion of total deaths in the first wave of the COVID-19 pandemic was higher than that of the second wave ($p<0.05$).

3) The total recovered cases:

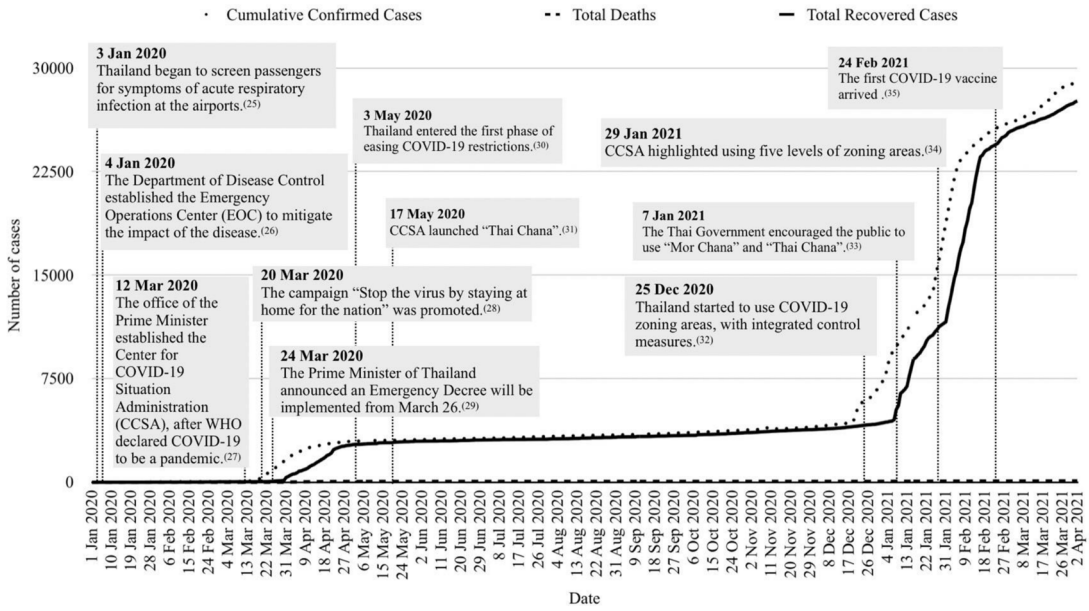
The proportion of total recovered cases in the first wave of the COVID-19 pandemic was lower than that of the second wave ($p<0.05$).

Discussion

The first wave of the COVID-19 pandemic in Thailand started in Mid-March. Daily rates of infection were very high from mid-March to early April, prior to that cumulative confirmed cases remain constant (Figure 1). The cumulative confirmed cases sharply soared again as of 20 December 2020. This period counted as the second wave of COVID-19 spreading through Thailand.

On 15 March 2020, the spread of infection was majorly detected in three major provinces where tourists most visited, including Bangkok, Chiang Mai, and Phuket.[36] In just a few weeks, the virus had spread to several provinces in Thailand. This period counted as the first wave of the COVID-19 pandemic in Thailand. Thailand implemented strict lockdown measures for the first wave of COVID-19 response, which was ordered to become effective in all areas of the country. There was a rapid response with very stern measures set in place by the Thai government which

Figure 1 The timeline of the major COVID-19 response in Thailand



severely restricted the movement of people. However, these swift, albeit somewhat draconian measures, ensured that Thailand was able to control the number of infected cases by early May, without there even being any vaccine available at that time. After following the declaration of the state of emergency, the number of new daily cases of COVID-19 showed an evident decline. From early May, the situation had been effectively controlled. The figure remained constant, and Thailand provided easing restrictions after the pace of new confirmed cases per day had become stable. On July 28th, 2020, Thailand ranked first among the countries with the highest COVID-19 recovery index.[37] Thailand is considered to be a country that had made remarkable progress in curtailing the spread of the COVID-19 pandemic at that time.[38]

The second wave of the COVID-19 outbreak in Thailand began at the central shrimp market in Mahachai fishing hub, Samut Sakhon. The number of laboratory-confirmed cases jumped to 576 by 20 December 2020.[39] At the COVID-19 second wave response, Thailand chose to focus on how to balance disease control and economic recovery. The measures went back to being stricter again as announced in Regulation No.15 to No. 18, which highlighted the use of COVID-19 zoning areas, with integrated control measures. Especially, Regulation No.18, There were five levels of zoning areas included: (1) maximum and strict COVID-19 control zones; (2) maximum COVID-19 control zones; (3) COVID-19 control zones; (4) COVID-19 high surveillance zones; (5) COVID-19 surveillance zones. Each of the areas was assessed and classified as different zones used for different measures. When the situation in the areas eased up or became more dangerous, the areas were assessed and classified again, leading to a change in the zone rules. On 7 January 2021, the Government encouraged the public to install and use the "Mor Chana" and "Thai Chana" applications as announced in Regulation No. 17 to receive updated information, behavioral recommendations, or warnings. Although the cumulative confirmed cases in the second wave of the COVID-19 pandemic was dramatically increase, Thailand could reduce total deaths and increase the number of recovered cases. For a long-term solution, the Thai government put focus on giving vaccines to the public by the end of 2021, so as to stop any increase in infections.[40]

The results from the second wave response shows Thailand could combat with COVID-19 pandemic with no strict lockdown to all areas of the country. To prevent any further wave of COVID-19 infections that might arise in the future, CCSA still continued on disease surveillance. CCSA also recommended people to adjust to the New Normal lifestyle, which followed the prevention and control measures for COVID-19 sternly, such as wearing a hygienic mask, washing hands, staying at home, working from home, avoiding travel and keeping social distancing.

Thailand responded to the new disease early. The government announced a state of emergency, which implemented the preventive measures from Regulation No.1 to No.18. There were strict measures put into place in crisis events, and there was the easing of restrictions in other events. With effective public health management and good governance using digital government and information and communication technologies (ICT), Thailand effectively controlled the infectious disease at the first and second waves with

different paths.

The results showed that:

1. The cumulative confirmed cases in the first wave of the COVID-19 pandemic were less than that of the second wave.

2. The total deaths in the second wave of the COVID-19 pandemic were less than that of the first wave.

3. The total recovered cases in the second wave of the COVID-19 pandemic were higher than that of the first wave.

Conclusions

During the first wave of the COVID-19 pandemic, Thailand implemented strict lockdown measures which were ordered to become effective in all areas of the country. After following the declaration of the state of emergency, the number of new daily cases showed an evident decline without COVID-19 vaccine available at that time.

In the second wave response, Thailand chose to focus on how to balance disease control and economic recovery, which highlighted the use of COVID-19 zoning areas, with integrated control measures. Strict lockdown measures were implemented in some provinces or areas. Moreover, Thailand began to distribute vaccines in February 2021. The result showed that the cumulative confirmed cases in the second wave of the COVID-19 pandemic jumped steeply. The cumulative confirmed cases in the second wave of the COVID-19 pandemic were higher than the first wave of the COVID-19 pandemic, but the total deaths were less than the first wave, and the total recovered cases were higher than the first wave.

The success of Thailand in combating the COVID-19 pandemic was attributed to the public health management, alongside cooperation from government agencies, and all people of Thailand that were cooperative. Thailand's response to the COVID-19 pandemic using specific preventive measures was appropriate for the situation in each period. Thailand could reduce and control new confirmed cases per day in the first wave, and could reduce death cases and increase total recovered cases in the second wave.

Acknowledgements

We would like to express our deep and sincere thanks to Dr. Rungwasun Kraiklang (a lecturer in the Industrial Engineering Department, Faculty of Engineering and Architecture, Rajamangala University of Technology Isan) for his support and advice. Finally, we would like to express our gratitude and appreciation to all participants who gave us the possibility to complete this research.

References

1. Khetan AK. COVID-19: why declining biodiversity puts us at greater risk for emerging infectious diseases, and what we can do. Journal of General Internal Medicine 2020;35(9):2746-7.
2. Ozili P, Arun T. Spillover of COVID-19: impact on the global economy [Internet]. 2020 [cited 2021 Feb 25]. Available from: https://ssrn.com/abstract=3562570
3. Jose PD. Sustainability education in Indian business schools: a status review. AD-minister 2016;28:255-72.
4. Korkmaz K. A comprehensive emergency management strategy for transportation systems in USA. Transport Problems 2017;12(4):153-62.
5. Smet HD, Leysen J, Lagadec P. The response phase of the disaster life cycle revisited. Proc of the IIE 61st An-

nual Conference and Expo; 2011 May 21-25; Reno, Nevada, USA. Red Hook, NY: Curran Associates; 2011. p. 21-5.

6. Erdelj M, Krol M, Natalizio E. Wireless sensor networks and multi-UAV systems for Natural Disaster Management. Computer Networks 2017;124:72-86.
7. World Health Organization. A framework for global outbreak alert and response [Internet]. 2000 [cited 2021 Jul 26]. Available from: https://apps.who.int/iris/handle/10665/66789
8. Roy N, Pandey BW. Concepts and practices of disaster management concepts and practices of disaster management. World Focus 2016;XXXVII.
9. Abdou AM. Good governance and COVID-19: The digital bureaucracy to response the pandemic (Singapore as a model). Journal of Public Affairs 2021;21(4):e2656.
10. Chen YC, Hsieh TC. Big data for digital government: opportunities, challenges, and strategies. International Journal of Public Administration in the Digital Age 2014; 1(1):14.
11. Azhar M, Azzahra HA. Government Strategy in Implementing the Good Governance during COVID-19 Pandemic in Indonesia. Administration Law & Governance Journal 2020;3(2):240-53.
12. World Health Organization. THAILAND: How a strong health system fights a pandemic [Internet]. 2020 [cited 2021 Feb 25]. Available from: https://www.who.int/publications/m/item/thailand-how-a-strong-health-system-fights-a-pandemic
13. University of Southampton. Study analyses potential global spread of new coronavirus [Internet]. 2020 [cited 2021 May 28]. Available from: https://www.southampton.ac.uk/news/2020/01/corona-virus.page
14. D'Arienzo M, Coniglio A. Assessment of the SARS-CoV-2 basic reproduction number, R0, based on the early phase of COVID-19 outbreak in Italy. Biosafety and Health 2020;2(2):57-9.
15. Liu Y, Gayle AA, Wilder-Smith A, Rocklov J. The reproductive number of COVID-19 is higher compared to SARS coronavirus. Journal of Travel Medicine 2020;27(2):taaa021.
16. Department of Disease Control. Guidelines for the COVID Vaccination in the 64 Epidemic situation in Thailand [Internet]. 2021 [cited 2021 Apr 19]. Available from: https://ddc.moph.go.th/uploads/files/1729520210301021023.pdf
17. World Health Organization. Transmission of SARS-CoV-2: implications for infection prevention precautions [Internet]. 2020 [cited 2021 Jul 19]. Available from: https://www.who.int/news-room/commentaries/detail/transmission-of-sars-cov-2-implications-for-infection-prevention-precautions
18. Open Development Initiative. Regulation Issued under Section 9 of the Emergency Decree on Public Administration in Emergency Situations B.E. 2548 (2005) [Internet]. 2020 [cited 2021 Aug 26]. Available from: https://data.thailand.opendevelopmentmekong.net/en/laws_record/regulation-issued-under-section-9-of-the-emergency-decree-on-public-administration-in-emergency-sit
19. Ministry of Foreign Affairs. Regulation Issued under Section 9 of the Emergency Decree on Public Administration in Emergency Situations B.E. 2548 (2005) (No. 18) [Internet]. 2021 [cited 2021 Jul 16]. Available from: https://www.mfa.go.th/en/content/regulation-issued-under-section-9-2?page=5f22514b78568958aa0d5b85&menu=5d5bd3cb15e39c306002a9b9
20. National Statistical Office. Population from registration, classified by age, sex and province, B.E. 2563 [Internet]. 2020 [cited 2021 Aug 18]. Available from: http://

www.ratchakitcha.soc.go.th/DATA/PDF/2564/E/053/T_0021.PDF

21. Ministry of Tourism & Sports. International Tourist Arrivals to Thailand [Internet]. 2021 [cited 2021 Aug 15]. Available from: https://mots.go.th/more_news_new.php?cid=593
22. Department of Employment. Statistics on the number of foreigners allowed to enter the remaining work throughout the Kingdom for December 2020 [Internet]. 2020 [cited 2021 Aug 9]. Available from: https://www.doe.go.th/prd/assets/upload/files/alien_th/a0bf3232bdb42f5fe6dbe66cfa75 b 02c.pdf
23. Foreign Workers Administration Office. Foreigners work statistics data [Internet]. 2021 [cited 2021 Aug 6]. Available from: https://www.doe.go.th/prd/alien/statistic/param/site/152/cat/82/sub/0/pull/category/view/list-label
24. Department of Employment. Statistics on the number of foreigners allowed to enter the remaining work throughout the Kingdom for April 2021 [Internet]. 2021 [cited 2021 Aug 6]. Available from: https://www.doe.go.th/prd/assets/upload/files/alien_th/bd1820a556d95628d24b178d32b32ef 3.pdf
25. Department of Disease Control. MOPH emphasizes no outbreak of Novel Coronavirus in Thailand, ensuring Thailand's preventive measures for emerging disease, early detection, early treatment [Internet]. 2020 [cited 2021 Apr 18]. Available from: https://ddc.moph.go.th/viralpneumonia/eng/file/news/news_no1_130163.pdf
26. National Health Commission Office. Elderly Phichit, adjusting in the COVID-19 crisis [Internet]. 2020 [cited 2021 Aug 29]. Available from: https://infocenter.nationalhealth.or.th/node/28144
27. Tangcharoensathien V. Thailand Decision making for social and movement measures in the context of COVID-19 [Internet]. 2020 [cited 2021 Oct 9]. Available from: https://cdn.who.int/media/docs/default-source/health-governance-and-financing/thailand.pdf?sfvrsn=581a7461_9g
28. Bangkokbiznews. The government raised the campaign "Stop the virus by staying at home for the nation" to reduce the burden of medical personnel [Internet]. 2020 [cited 2021 Jul 15]. Available from: https://www.bangkokbiznews.com/news/871773
29. Ministry of Foreign Affairs. Regulation issued under Section 9 of the Emergency Decree on Public Administration in Emergency Situations B.E. 2548 (2005) (No. 1) [Internet]. 2020 [cited 2021 Oct 5]. Available from: https://www.mfa.go.th/en/content/115867-regulation-issued?page=5f22514b78568958aa0d-5b85&menu=5d5bd3cb15e39c306002a9b9
30. TAT NEWS. TAT update: Businesses and activities allowed to reopen with strict control from 3 May 2020 [Internet]. 2020 [cited 2021 Jul 29]. Available from: https://www.tatnews.org/2020/05/tat-update-businesses-and-activities-allowed-to-reopen-with-strict-control-from-3-may-2020/
31. TAT NEWS. Thailand launches 'Thai Chana' online platform to retain effectiveness in COVID-19 control measures [Internet]. 2020 [cited 2021 Aug 16]. Available from: https://www.tatnews.org/2020/05/thailand-launches-thai-chana-online-platform-to-retain-effectiveness-in-covid-19-control-measures
32. Ministry of Foreign Affairs. Regulation Issued under Section 9 of the Emergency Decree on Public Administration in Emergency Situations B.E. 2548 (2005) (No. 15) [Internet]. 2020 [cited 2021 Aug 15]. Available

from: https://www.mfa.go.th/en/content/regulation-issued-under-section-9?cate=5f2916be298ee-b02ac2eb389

33. Ministry of Foreign Affairs. Regulation Issued under Section 9 of the Emergency Decree on Public Administration in Emergency Situations B.E. 2548 (2005) (No. 17) [Internet]. 2020 [cited 2021 Jul 18]. Available from: https://www.mfa.go.th/en/content/regulation-issued-under-section-9-of-the-2?cate=5f-2916be298eeb02ac2eb389
34. Ministry of Foreign Affairs. Regulation Issued under Section 9 of the Emergency Decree on Public Administration in Emergency Situations B.E. 2548 (2005) (No. 18) [Internet]. 2020 [cited 2021 Jul 27]. Available from: https://www.mfa.go.th/en/content/regulation-issued-under-section-9-2?cate=5f2916be298ee-b02ac2eb389
35. Boyle G. 317k vaccine doses fly in [Internet]. 2021 [cited 2021 Jul 19]. Available from: https:// www.bangkokpost.com/learning/easy/2073711/317k-vaccine-doses-fly-in
36. Matichon Online. MHESI makes graphics explaining the number of patients - deaths from Covid-19 [Internet]. 2020 [cited 2021 Aug 29]. Available from: https://www.matichon.co.th/news-monitor/news_2108178
37. Business News. Thailand Ranks First in the Global COVID-19 Recovery Index [Internet]. 2020 [cited 2021 Aug 28]. Available from: https://www.thailand-business-news.com/health/80125-thailand-ranks-first-in-the-global-covid-19-recovery-index.html
38. United Nations Children's Fund (UNICEF). Social-Economic Impact Assessment of COVID-19 in Thailand [Internet]. 2020 [cited 2021 Aug 16]. Available from: 38 https://www.unicef.org/thailand/media/5666/file/Socio-Economic%20Impact%20Assessment%20of%20COVID-19%20in%20Thailand.pdf
39. World Health Organization. Coronavirus disease 2019 (COVID-19) – 20 December 2020 [Internet]. 2020 [cited 2021 Oct 5]. Available from: https://reliefweb.int/sites/reliefweb.int/files/resources/2020_12_20_THA-Sitrep-101-COVID19_EN.pdf
40. NNT. Thailand raises vaccine supply target to 150m doses [Internet]. 2021 [cited 2021 Oct 2]. Available from: https://thainews.prd.go.th/en/news/print_news/TCATG210508164907683

บทคัดย่อ: การศึกษาเปรียบเทียบการรับมือกับการระบาดของโควิด 19 ระหว่างระลอกที่หนึ่งและระลอกที่สองในประเทศไทย

วัชราภรณ์ จูฑะรงค์ MTCSOL.*; เหวยเหวิน จาง ปร.ด. (เศรษฐศาสตร์สิ่งแวดล้อม)*; จิณณวัตร เกิดวิบูลย์ วศ.บ. (วิศวกรรมอุตสาหการ)**

** คณะรัฐศาสตร์ มหาวิทยาลัยเจ้อเจียง หางโจว ประเทศสาธารณรัฐประชาชนจีน; ** วิทยาลัยเทคนิคนครราชสีมา จังหวัดนครราชสีมา*

วารสารวิชาการสาธารณสุข 2565;31(เพิ่มเติม 2):S234-S246.

การวิจัยนี้ศึกษาบทบาทของรัฐบาลไทยในการจัดการกับภาวะฉุกเฉินด้านสาธารณสุขโดยใช้มาตรการป้องกันและควบคุมโรคโควิด 19 และวิเคราะห์ผลการใช้มาตรการเหล่านี้ วิธีการในการวิจัยรวมถึงการบันทึกและการสังเกตการณ์จำนวนผู้ป่วยที่ได้รับการยืนยัน ผู้ป่วยที่รักษาหาย และผู้เสียชีวิตในประเทศไทย ตั้งแต่วันที่ 1 มกราคม 2563 ถึง 2 เมษายน 2564 โดยเป็นข้อมูลจากจากศูนย์บริหารสถานการณ์ COVID-19 (ศบค.) ศึกษามาตราการป้องกันและควบคุมโรคโควิด 19 ที่กำหนดไว้ในข้อกำหนดฉบับที่ 1 ถึงฉบับที่ 18 เปรียบเทียบการรับมือกับการระบาดของโรคโควิด 19 ในระลอกที่หนึ่งและระลอกที่สอง ผลการศึกษาพบว่าประเทศไทยเริ่มใช้มาตรการรับมือกับการแพร่ระบาดตั้งแต่เนิ่น ๆ ในการรับมือกับการระบาดของโรคโควิด 19 ในระลอกที่หนึ่ง ประเทศไทยได้ใช้มาตราการล็อกดาวน์อย่างเข้มงวดโดยมีผลบังคับใช้ทั่วประเทศ ด้วยแนวทางที่เหมาะสมกับสถานการณ์ ประเทศไทยสามารถควบคุมการระบาดของโรคโควิด 19 ได้อย่างมีประสิทธิภาพในระลอกที่หนึ่ง จำนวนผู้ป่วยที่ได้รับการยืนยันสะสมในระลอกที่หนึ่งของการระบาดของโควิด 19 น้อยกว่าในระลอกที่สอง ในการตอบสนองต่อการระบาดของโควิด 19 ในระลอกที่สอง ประเทศไทยได้มุ่งเน้นถึงความสมดุลของการควบคุมโรคและการฟื้นฟูเศรษฐกิจ ได้ใช้การจัดพื้นที่ตามสถานการณ์ด้วยมาตรการควบคุมแบบบูรณาการ อีกทั้งมีแผนการกระจายวัคซีนแก่ประชาชน จำนวนผู้เสียชีวิตทั้งหมดน้อยกว่าระลอกแรกและจำนวนผู้รักษาหายมากกว่าระลอกแรก โดยสรุปการตอบสนองของประเทศไทยต่อการระบาดของโควิด 19 โดยใช้มาตรการป้องกันและควบคุมเฉพาะ มีความเหมาะสมกับสถานการณ์ในแต่ละช่วง ประเทศไทยสามารถลดและควบคุมยอดผู้ป่วยติดเชื้อรายวันได้ในการตอบสนองต่อการระบาดของโควิด 19 ในระลอกที่หนึ่งและสามารถลดจำนวนผู้เสียชีวิตและเพิ่มผู้รักษาหายโดยรวมได้ในระลอกที่สอง

คำสำคัญ: โควิด 19; การรับมือโควิด 19; มาตรการป้องกันและควบคุม; การควบคุมโรคติดเชื้อ; ประเทศไทย