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Examining Thailand's Public Health Emergency Management Response to COVID-19: Insights from Health Region 9's Pandemic Approach

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Abstract. This phenomenological study investigated Thailand's public health emergency response during COVID-19 via Health Region 9's "COVID-19 Back Home" program. In-depth interviews with 112 key stakeholders revealed coordination mechanisms, treatment capacities, community participation and behavioral adaptations underpinning perceived successes. However, presentations of rich qualitative insights were limited. Discussion focuses on contextualizing robust infrastructure, public-private collaborations, and social capital evident inpandemic responses while calling for enhanced methodological rigor in future inquiries.

Keywords: COVID-19, Nakhon Ratchasima, phenomenological qualitative research, Public Health Emergency Management (PHEM), Thailand

1. Introduction

The emergence of the COVID-19 pandemic in late 2019 presented unprecedented challenges globally, impacting various sectors, including Thailand. The closure of borders on March 28, 2020, severely affected the country's tourism economy, with a drastic decline from 40 million tourists per year to nearly zero (Kaendera & Leigh, 2021; Yurayat & Tuklang, 2023). As the virus spread (Figure 1), Thailand's Public Health Management System (PHMS) faced disruptions, prompting swift adaptations and measures to combat the initial waves (Marshall et al., 2021; Wilasang et al., 2022).

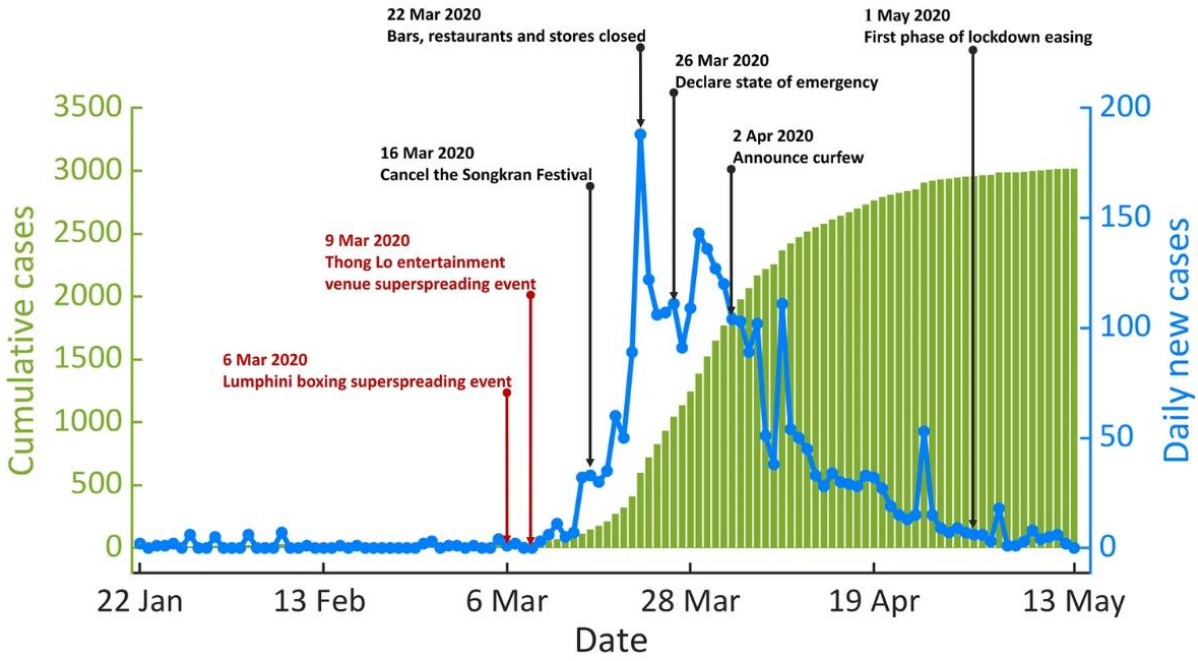

Fig. 1: Thailand's first wave of COVID-19 outbreak.
Source: Wilasang et al. (2022)
Note: The blue line shows the daily number of new locally transmitted cases during the first epidemic wave (from 22 January to 13 May 2020). The green bars show the corresponding number of cumulative cases. The black lines indicate the time points at which control measures were implemented, while the time points of the large cluster outbreaks are shown using the red lines.

To effectively manage the situation, Thailand implemented strong public health and social measures, employing over 1000 surveillance and rapid response teams supported by 1.1 million village health volunteers (Kaweenuttayanon et al., 2021; Rajatanavin et al., 2021). The Centre for COVID-19 Situation Administration (CCSA) enforced additional measures under a state of emergency, including a national lockdown, curfews, and mandatory quarantine for international travelers (World Health Organization, 2020a).

Thailand's PHMS faced the challenge of identifying and detecting COVID-19 cases, becoming the first country outside China to report a case (Ayudhaya & McFarlane, 2019; Okada et al., 2020; WHO, 2020a). With limited knowledge about the virus, enhanced screening at airports, quarantine measures, and intensified contact tracing were implemented (McLaughlin, 2020; WHO, 2020a).

The surge in cases strained healthcare infrastructure, leading to challenges in resource allocation and capacity (Rajatanavin et al., 2021). Critical care resources, including ICU beds and ventilators, were depleted, necessitating the setup of emergency field hospitals (Marshall et al., 2021).

Thailand's PHMS addressed the need for effective public health messaging, implementing campaigns to educate the public on preventive measures and combat misinformation (Yurayat & Tuklang, 2023). Simultaneously, university student mental health counseling moved online to adapt to the crisis.

Collaboration among stakeholders, including government agencies, healthcare professionals, and international organizations, played a crucial role in managing the initial waves of COVID-19. The experiences during this period strengthened Thailand's response and preparedness.

Despite challenges during the third and fourth waves, Thailand's initial success is evident in the control of COVID-19 cases in Health Region 9. The study emphasizes the importance of local experiences in preparing for future outbreaks and advocates for agencies to review and improve their systems based on contextualized lessons. The investigation provides valuable insights for promoting disease prevention and control measures, contributing to overall public health emergency management.

The study aims to investigate public health emergency management in response to COVID-19, focusing on Health Region 9 and the process of returning COVID-19 patients to their respective hometowns during the period from January 31, 2020, to January 30, 2022, covering the first four waves (Table 1).

Table 1. Covid's four waves

Health Region 9	**First wave cases**	**Second wave cases**	**Third wave cases**	**Fourth wave cases**
Province 1	19	32	29,634	79,621
Province 2	14	15	16,732	59,372
Province 3	9	14	17,042	45,922
Totals				

Source: Department of Disease Control (2022).

Table 1. Covid's four waves in Thailand's Health Region 9

Health Region 9	**First wave cases**	**Second wave cases**	**Third wave cases**	**Fourth wave cases**
Province 1	19	32	29,634	79,621
Province 2	14	15	16,732	59,372
Province 3	9	14	17,042	45,922
Totals	42	61	63,408	184,915

Source: Department of Disease Control (2022).

These figures underscore the efficacy of Thailand's COVID-19 control strategies during the initial waves, particularly in Health Region 9 (Nakhon Ratchasima). Despite being classified as a developing country with a global Gross National Product (GDP) ranking of 22nd in 2019, Thailand showcased exceptional prowess in health security, securing a remarkable sixth position among 195 countries and standing as the foremost in Asia (Office of the Permanent Secretary, Ministry of Public Health, 2020). This pre-existing strength in health security strategically positioned Thailand to effectively combat the outbreak.

However, the narrative took a challenging turn during the third and fourth waves (March 2021 to April 30, 2022), witnessing a surge in positive cases that overwhelmed hospitals, posing significant challenges in patient accommodation and resulting in an unfortunate rise in fatalities. In response, certain provinces implemented a pragmatic policy of repatriating patients, colloquially known as the "Thai's 'Covid-19 train'" (2021), necessitating meticulous preparation, crisis acceptance, and seamlessly coordinated planning within local medical and public health systems. This endeavor demanded the strategic utilization of the Isan region's social capital to effectively manage the influx of patients.

The study serves as a clarion call to glean invaluable lessons from local experiences, offering a blueprint for future outbreak and disaster preparedness (Bhaskara & Filimonau, 2021). Its findings furnish agencies with actionable insights to not only review and refine their existing work systems but also to embrace and implement effective measures and policies geared toward disease prevention and control. Furthermore, the study underscores the imperative for agencies and affiliated associations to not only derive meaning from these lessons but also to contextualize and apply them in specific areas,

championing the cause of disease prevention and control measures and policies.

In sum, the overarching objective of the study was to meticulously probe public health emergency management in response to COVID-19, centering on Health Region 9 and the intricacies of repatriating COVID-19 patients to their respective hometowns.

1.1. Research Questions

- How did the administrative and command structure, with the provincial governor as the single commander, contribute to the coordination and collaboration among different sectors during the COVID-19 crisis in Health Region 9?
- What role did relevant laws, such as the Communicable Diseases Act and the Public Administration in Emergency Situations Act, play in providing a legal framework for managing the COVID-19 crisis in Health Region 9?
- In what ways did the Thai Health Promotion Foundation (THPF) tri-power strategy model (the 'triangle that moves the mountain') enhance collaboration between academics, society, and state power, and how did it contribute to effective public health emergency management in Health Region 9?
- How did the incident command system of the Department of Disease Control, consisting of mission groups, function as an effective structure for managing the COVID-19 crisis in Health Region 9?
- What were the key activities and processes implemented by the Emergency Operations Center (EOC) committee in reviewing the epidemic situation, presenting data and work plans to the Provincial Communicable Disease Committee (PCDC), and determining resolutions and orders during the COVID-19 crisis in Health Region 9?
- How did the COVID-19 Back Home program demonstrate flexibility and speed in managing the return of patients home during the third wave when hospitals in Bangkok reached capacity, and how was coordination established among relevant agencies at the provincial, district, and community levels?
- What measures were implemented for treatment, social communication, and post-disaster recovery in Health Region 9 during the COVID-19 crisis, and how did these measures contribute to effective public health emergency management?

These research questions aim to provide a more focused and precise direction for investigating the unique contributions of Health Region 9's public health emergency response to the COVID-19 crisis.

2. Methods

The study used a phenomenological qualitative research method from December 2021 to January 2022 in three northern Thai provinces.

2.1. Key Informants

The study comprises four distinct groups of informants, namely policy level executives, disease prevention and control workers, maintenance worker group, and a group of volunteer public health officials, community leaders, and community representatives. The total number of participants involved in the study is 112, distributed across three provinces: Nakhon Ratchasima with 39 participants, Buriram with 35 participants, and Surin with 38 participants. These executives encompassed roles such as disease prevention and control specialists, maintenance officers, public health volunteers, community leaders, or community representatives.

For data collection, a semi-structured interview format was employed. This type of interview involved a set of questions crafted by the researchers, which underwent thorough checks for both consistency and content accuracy. The structure of the questions was reviewed by public health experts

and grounded in qualitative research methodologies in medical social science. To ensure the quality of the interview form, a face validity assessment was conducted by three individuals.

2.2. Research Instrument

The research instrument consisted of a semi-structured survey for in-depth interviews and focus group discussions with people involved in public health emergency management in response to COVID-19. According to Gill et al. (2008), the most frequently used methods for data collection in qualitative research are focus groups and interviews. The content validity of the interviews was checked by five experts (Yurayat & Tuklang, 2023).

2.3. Data Collection

The researchers-initiated contact with the disease control officer at the Provincial Public Health Office, serving as the study's coordinator. As highlighted by Kaewchandee et al. (2023), district public health officers (DPHO) played a pivotal role in delivering essential resources to patients during the COVID-19 outbreak in Thailand.

An official letter was dispatched to the coordinator, formally requesting an interview with the target group. The letter detailed the study's significance, outlined the expected interview duration, and specified the particular issues to be explored. Additionally, the letter included the interview questions.

Concerning the invitation of respondents to participate in the research, the provincial coordinator took charge of planning the interviews. This involved setting the date, time, and location of the interviews and notifying the respondents at least one to two weeks in advance.

Throughout the interviews, the research team manually collected data at each stage of the process. The sequence commenced with self-introductions, followed by familiarization and the establishment of trust with the target groups. Subsequently, the team clarified the study's objectives, explained the research process steps, and outlined the overall duration of the research, along with the expected length of each interview. The individual interviews spanned 30 to 60 minutes, while the focus group discussions extended from 90 to 120 minutes.

2.4. Interview Process

The researchers conducted interviews using a two-fold approach, employing broad questions within the predetermined content framework and in-depth interviews tailored to meet the specific research objectives. Creating a conducive and friendly atmosphere, the researchers proactively addressed various issues. This in-depth interview technique was applied to individuals serving as leaders or representatives within academic groups, NGO groups, and public communicator groups. The discussions centered around topics related to each participant's role in disease prevention and control, management styles, propulsion, conditions, and elements contributing to the success of public policy development, among others.

To select interviewees, a purposive sampling approach was utilized, focusing on command operators and functional structures under the Emergency Situation Command. Additionally, a snowball sampling method was incorporated to identify and include practitioners at the area level. The interviewer, an experienced researcher with a graduate-level understanding of scientific research processes, collaborated with a research team and adhered to established guidelines. Each interview session, lasting approximately 1 hour, sought permission from the interviewee to record information using a radio tape.

2.5. Data Analysis

The data analysis in this study followed a structured process informed by the content analysis methodology proposed by Weber (1990). Initially, the information gathered was transcribed, and the results from field recordings underwent multiple readings to ensure a comprehensive grasp of the overall content.

Subsequently, a more detailed examination ensued. The information was revisited, and through careful reading, messages or important sentences pertaining to emergency management and response were interpreted and extracted. Messages or sentences sharing similar meanings were then grouped together. Each group was assigned an information code labeled with a keyword, and these were further categorized into both large groups and subgroups, falling within the broader definition of large groups. This involved creating summary topics and groups of topics to succinctly encapsulate the concepts present in the data.

The findings were articulated through written descriptions, offering a detailed and lucid account. Importantly, no theoretical framework was applied, with a focus on controlling the phenomenon observed. This included the incorporation of examples featuring accompanying words, keywords, and other significant terms. Triangulation was employed during the data examination, achieved through interviews conducted at different times, places, and with various individuals. This process ensured the consistency of information with the informants both during the data collection phase and at its conclusion. Additionally, in exploring the same issue, interviews were conducted with diverse groups of people, contributing to a more comprehensive understanding.

2.6. Ethics Clearance

In this study, the researcher was certified in research ethics from the Human Research Ethics Committee, Institute for the Development of Human Research Protections (IHRP), IHRP 2021076. The researchers complied with considerations and ethics guidelines for human research in all study phases (Pımdee, 2020).

3. Results

3.1. General System Theory (GST)

Ludwig Bertalanffy's General System Theory (GST) provided a holistic and interdisciplinary framework for understanding Thailand’s complex Public Health Emergency Management (PHEM) system, its structures, interactions, and behaviors (Guberman, 2004). When applied to COVID-19 and PHEM, GST offered valuable insights into the interconnectedness and interdependencies of various elements within the PHEM system (Katrakazas et al., 2020).

3.1.1. Systemic Perspective

GST emphasizes viewing COVID-19 and PHEM as dynamic systems rather than isolated events. GST highlights the interactions between different components, including the virus, individuals, healthcare systems, government policies, and societal factors. This perspective helps identify the interconnected nature of the system and the potential ripple effects caused by interventions or disruptions in any part of the system.

3.1.2. Emergent Properties

GST acknowledges that systems exhibit emergent properties that arise from the interactions of their components. In the context of COVID-19, emergent properties can include the spread patterns of the virus, the impact on healthcare infrastructure, and the socio-economic consequences. Understanding these emergent properties allows for a more comprehensive assessment of the system's behavior and the potential cascading effects of public health emergencies.

3.1.3. Feedback Loops

GST highlights the presence of feedback loops within systems, including positive and negative feedback mechanisms. In the case of COVID-19, feedback loops can manifest in various ways. For example, positive feedback can occur when a rise in cases leads to increased transmission rates, overwhelming healthcare systems. Negative feedback can be observed when preventive measures, such as lockdowns or vaccinations, help reduce transmission rates and alleviate the burden on healthcare facilities.

3.1.4. Open Systems

GST recognizes that systems, including public health emergencies, are open and interact with their environment. COVID-19 management involves interactions with the external environment, such as international travel restrictions, border control measures, and the influence of cultural, economic, and political factors. Understanding the system's openness helps comprehend the external factors that shape the dynamics of the pandemic and public health emergency responses.

3.1.5. Interdisciplinary Approach

GST promotes an interdisciplinary approach to problem-solving, recognizing that complex issues require insights from multiple disciplines. COVID-19 and PHEM involve various disciplines, including epidemiology, healthcare, economics, psychology, and sociology. Integrating knowledge from diverse fields can enhance understanding, decision-making, and the development of comprehensive strategies to mitigate the impacts of the pandemic.

3.1.6. Adaptability and Resilience

GST underscores the importance of adaptability and resilience within systems. In the context of COVID-19, public health emergency management must exhibit adaptability by continually updating strategies based on new scientific evidence, monitoring the effectiveness of interventions, and adjusting policies to address emerging challenges. Building resilience involves preparing healthcare systems, infrastructure, and communities to respond effectively to future outbreaks or public health emergencies.

Applying Bertalanffy's General System Theory to COVID-19 and PHEM enables a holistic understanding of the complexity and interconnectedness of the system. It emphasizes the need for integrated approaches, interdisciplinary collaboration, and adaptive strategies to address the challenges posed by the pandemic effectively.

3.2. Inputs

Planning and support for Public Health Emergency Management (PHEM) in response to COVID-19 involved an administrative and command structure with a single commander. Resolutions and proposals from the Provincial Communicable Disease Control Committee were based on policy guidelines from the Center for COVID-19 Situation Administration, Ministry of the Interior, under the Prime Minister's leadership. Two critical operations were established: the *Provincial Communicable Disease Committee* (PCDC) and the *Disaster Prevention and Mitigation Division*, with the provincial governor serving as chair, following the guidelines of the World Health Organization (2020c).

The command system was well-structured, with the supreme commander making decisions and an integrated team responsible for driving the work, including the Provincial Management Center Committee. Meetings were held to implement PCDC. Measures were implemented in alignment with the management center's guidelines, adapted to suit the specific needs of each province. Collaboration between relevant agencies was crucial since the public health department may need more authority to cover all activities. Measures and activities were clarified and enforced under the Communicable Diseases Act B.E. 2558 (2015) and the Emergency Decree on Public Administration in Emergency Situations B.E. 2548 (2005), introducing a new dimension of disease control. Unlike previous epidemics where the public health sector primarily operated alone, the COVID-19 response required cooperation from multiple governments and public health sectors, reflecting a genuine social and national sacrifice.

The PCDC 's command system demonstrated agility and speed in response to situations. Technology was utilized to issue measures and announcements swiftly. Daily board meetings were held during the early stages, chaired mainly by the provincial governor, with committee members attending in person. To stay informed, district committees could participate via online technology, live broadcasts, or Facebook Live. As the situation improved, the frequency of meetings gradually decreased, but urgent decisions could be coordinated directly with the governor using technology.

The management model in medicine and public health involves the Public Health Emergency Management Committee under the *Public Health Emergency Operation Center* (PHEOC) (World Health Organization, 2021), following national and provincial orders and transmitting them to the PHEOC at the district level. The Provincial Public Health Office established a clear PHEOC based on previous disaster management experience, making necessary improvements to ensure consistency. Well-defined mission groups with clear roles facilitated real-time teamwork, resulting in consistent and coordinated mechanisms. The COVID-19 outbreak led to the automatic improvement of medical and public health personnel through knowledge development and operational enhancements.

Budgets for implementation were obtained from various sources, including the public and private sectors and donations. TO SUPPORT SL, the PHEOC ensured stockpiling and logistics (SL) of medical supplies, equipment, ICT, communication systems, survival equipment, vehicles, operating centers, and facilities. In the initial phase of COVID-19, focus was placed on prevention, screening, stock observation, and equipment and vaccine management. The PHEOC's COVID-19 stock was not procured independently, but the ministry's logistics supported the area's management, including a '*Cohort Ward'* (Naorungroj et al., 2023).

3.3. Activities

Activities for PHEM at the provincial level included roles and mechanisms to drive operations from inputs, with integration from the public, communities, and individuals in the provinces. The lessons could be summarized according to implementing public health emergency management (PHEM) 2P2R (P1: *Prevention and Mitigation*, P2: *Preparedness*, R1: *Response*, R2: *Recovery*) as discussed below:

3.3.1. P1: Prevention and Mitigation and P2: Preparedness

The province's policy for dealing with COVID-19 involved conducting a situation analysis. The Provincial Public Health Emergency Operation Center (PHEOC) committee reviewed the COVID-19 epidemic situation at the provincial level, considering information from around the world, continents, countries, and provinces while aligning with policies set by the national level Center for COVID-19 Situation Administration (CCSA). They analyzed and assessed health behaviors and public risks. A *table plan* was used to present information and work plans to the Provincial Communicable Disease Control Committee (PCDC), with the provincial governor as the commander, to determine resolutions and issue announcements.

The PCDC implemented preventive measures to mitigate the epidemic's impact. These included surveillance and prevention measures for individuals coming from risky countries or areas, screening potentially infected individuals (PUI) by *Village Health Volunteers* (VHVs) and *Subdistrict Health Promoting Hospitals* (SHPH) in line with previous studies (Kaweenuttayanon et al., 2021; World Health Organization, 2020a). They also supported at-risk groups and developed guidelines for various emergency agencies. At the district and subdistrict levels, the district chief served as the chairman of the PHEOC and received assistance from various departments, including the district health office, SHPH, community leaders, VHVs, and other sectors (Tejativaddhana et al., 2020). This integration of sectors created a new approach to disease control, involving collaboration from all sectors.

During the third wave, when the number of patients increased so Bangkok could no longer accommodate them, the province had to repatriate patients to their hometowns. This was done by preparing Community Isolation (CI) facilities and field hospitals to provide appropriate care and support.

3.3.2. R1: Response

The Provincial Communicable Disease Control Committee (PCDC) issued resolutions and orders to address prevention and control, treatment, and social measures during the first and second waves of the disease outbreak. They relied on guidelines from previous outbreaks to inform their efforts. However, both healthcare practitioners and the public initially lacked knowledge about the emerging disease,

leading to panic and anxiety. As the number of patients increased during the third wave, the *COVID-19 Back Home* initiative was introduced. This initiative involved the establishment of a call center to coordinate with relevant agencies at the provincial, district, and community levels.

During Thailand's 2021 Songkran water festival, many people, including those in Bangkok and other provinces, began returning to their hometowns in rural areas like Thailand's Northeast (Isan). In July 2021, an order was issued to close worker camps in Bangkok, resulting in a situation where people had to *wait for examinations, beds, and death*. Region 9 took the initiative to bring patients back home, but it was challenging because only patients with PCR results were allowed to return. This caused confusion and difficulty in contacting people to return home as Bangkok did not provide testing facilities, hospitals were at total capacity, and there were numerous deaths.

Region 9 had to prepare dedicated areas for patients without PCR results to address the situation, including establishing quarantine (LQ) and waiting centers. The advantage of rural areas was that people had siblings and relatives whose houses could be used as quarantine facilities. Proper management of infectious waste was necessary during community quarantine. High-risk groups were instructed to burn their waste daily. Officers collected waste from patients, sent it to hospitals, disposed of it at waste facilities, and used appropriate casings. Initially, this method was not widely accepted, but the Department of Health recommended its use.

Consequently, the Community Isolation (CI) approach allowed patients to handle infectious waste themselves. Temples and communities collaborated in using crematoriums to dispose of infectious waste. Proper management of bodies according to guidelines was crucial when deaths occurred. Cremation required a standard incinerator, so a provincial hospital developed a guideline for coordinating corpse management.

3.3.3. Community Engagement

In Region 9, community engagement played a significant role in the COVID-19 response. The advantage of rural areas was that people had strong social networks, with siblings and relatives offering their homes as quarantine facilities. This sense of community and kinship support facilitated the implementation of quarantine measures and helped control the spread of the virus.

3.3.4. Innovative Waste Management Solutions

Managing infectious waste was a crucial aspect of the response. In addition to high-risk groups burning waste daily, the Community Isolation (CI) approach allowed patients to dispose of infectious waste themselves (Chartier, 2014). This innovative solution reduced the burden on healthcare facilities and ensured proper waste management in the community. Temples and communities also collaborated in utilizing crematoriums to dispose of infectious waste safely.

3.3.5. Challenging Situations

With the vast increase in patients during the third wave, resources became limited. The orders to close worker camps in Bangkok led to a complex situation where people were left waiting for testing, beds, and sadly, even deaths occurred. This highlights the challenges and strains experienced by the healthcare system and the need for effective coordination and resource allocation.

3.3.6. Guideline for Coordinating Corpse Management

Proper management of deceased individuals was a critical aspect of the response. Cremation required a standard incinerator, and a provincial hospital developed a guideline to ensure the appropriate handling and coordination of corpse management. This emphasized the importance of maintaining respectful and proper procedures even during challenging times.

3.3.7. Treatment

In the initial two waves, healthcare practitioners grappled with panic fueled by a dearth of knowledge

and equipment. Identified cases were initially managed by a provincial hospital until patients could return home. Simultaneously, a community hospital assumed the role of imparting training on *infection control* (IC) and *personal protective equipment* (PPE) to *patients under investigation* (PUI). Through a collaborative effort with a provincial hospital acting as a mentor, guidelines were developed, and advice was dispensed to the community hospital via the Line application. To address the surge in cases, prominent government hospitals and field hospitals established an *acute respiratory infection* (ARI) clinic, an *emergency room* (ER), a *cohort ward/intensive care unit* (ICU), treatment equipment, and a comprehensive care service system. Care for patients in *home isolation* (HI), *community isolation* (CI), and *field alternative isolation* (FAI) leveraged innovation, technology, and a network of personnel from both the public and private sectors, along with volunteers.

During the third wave, a substantial influx of patients returning from Bangkok due to the Songkran Festival and the closure of worker camps occurred. However, in the midst of the crisis in Bangkok, patients were only admitted for treatment with PCR test results, presenting a significant challenge. The ARI clinic, originally a tuberculosis room, was repurposed into a cohort ward for COVID-19 patients using the 'inflated' or 'Bullfrog Model' to increase bed capacity. Community isolation and field hospitals were later added when room capacity proved insufficient. Proactive facility preparation yielded positive results during the COVID-19 situation, necessitating modifications such as extending the operating hours of the ARI clinic to a full day. Contact tracing activities were temporarily suspended to allocate resources for swab testing. Services, including medication delivery to homes, appointment postponements, and proactive case admission through Google Forms, were implemented to screen symptoms and patient history.

Effective teamwork was paramount, especially in modifying risky tasks during direct patient contact. Well-coordinated teams ensured the timely discharge of patients who had completed their 14-day treatment to accommodate new cases. Rehabilitation centers or CI were utilized for patients still undergoing treatment. Some communities employed home isolation with Line application assistance for symptom monitoring. Thus, community care required active involvement from District Public Health, *Subdistrict Health Promoting Hospital* (SHPH), *Village Health Volunteers* (VHVs), and community leaders. The Isan social capital in a large province facilitated the establishment of quarantine areas like the LQ, CI, or expansion to field hospitals (Figure 2). Patients received care from hospital staff, VHVs, and community members who provided food for both relatives and non-relatives.

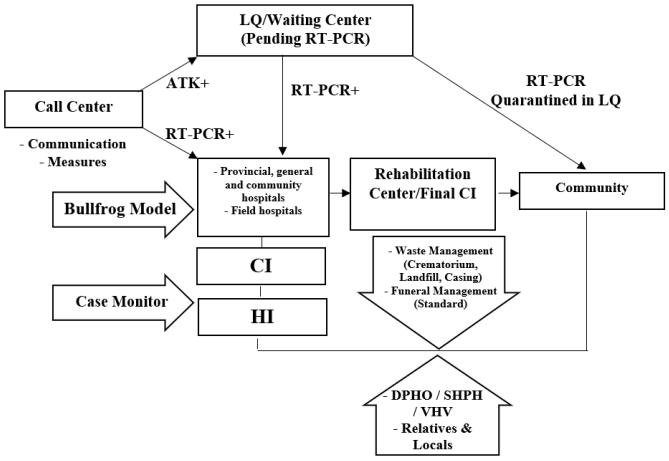

Fig. 2: Operation of Thailand's 'COVID-19 Back Home' Program

3.3.8. Social Measures

The province communicated social measures to the public to create health awareness and encourage participation from various sectors and areas. These measures included social distancing, guidelines for

factories, schools, and practices to prevent infection and the spread of the disease, formulated within the province based on resolutions from the Provincial Communicable Disease Control Committee (PCDC). Effective communication channels were necessary for the public to understand and receive accurate information. The call center was a central hub to provide information, advice, and assistance, handle complaints, and receive reports. Any issues that arose were distributed to relevant organizations for prompt resolution. Dissatisfied individuals who called in to complain or discuss concerns were listened to, and doctors also used Facebook Live to answer questions and explain various measures. Community leaders played a role in disseminating information.

3.3.9. R2: Recovery

As the third and fourth waves subsided, provinces began reopening, allowing people to resume normal activities. However, businesses had been closed for an extended period, impacting income and livelihoods. COVID-free settings were implemented to assess the safety of the environment, service providers, and recipients. Signs indicating safety standards were categorized as green, yellow, and red. Vaccination coverage was prioritized, and vaccination measures were considered for event permissions, with vaccination coverage as a determining factor for approval.

3.4. Output

The effective performance and COVID-19 Back Home management in Health Region 9 resulted in the saving of numerous lives. Another noteworthy accomplishment was the transformation of crisis into opportunity, achieved through collaborative efforts across all sectors to address the challenges posed by COVID-19, accompanied by significant shifts in people's behaviors.

In terms of success factors and obstacles, the initial phase saw success factors rooted in laws, structures, and mechanisms guided by the 'triangle that moves the mountain' strategy. This strategy encompassed academic, societal, and state power elements, emphasizing the importance of strong leadership capable of excelling in diverse contexts and swiftly responding to disaster situations. The middle phase identified personnel who made sacrifices, communicated transparently, comprehended the needs of community members, and responded promptly as crucial success factors. A challenge encountered in disease prevention and control management was the concealment of information by uneducated and fearful community members. Overcoming this challenge involved fostering understanding, as the Isan social capital of intimacy facilitated community members' willingness to support each other.

In the final phase, success was attributed to policies and measures for post-disaster recuperation management that didn't wait for the disease to subside. This proactive approach ensured a comprehensive and timely response to the challenges posed by the aftermath of the pandemic.

4. Discussion

The study delved into various facets of Thailand's Public Health Emergency Management (PHEM) response to COVID-19, focusing on the innovative COVID-19 Back Home program within Health Region 9. While emphasizing successful strategies and collaborations, it is crucial to acknowledge limitations and considerations for localized applications of the identified principles.

The administrative and command structure, led by the provincial governor, played a pivotal role. Coordination among different sectors was facilitated, emphasizing the importance of relevant laws such as the Communicable Diseases Act and the Public Administration in Emergency Situations Act. While these findings underscore successful practices, it's imperative to recognize that local contexts may vary, and the applicability of these principles might require nuanced adjustments.

The Thai Health Promotion Foundation's tri-power strategy model was instrumental, highlighting collaboration between academics, society, and state power (Figure 3). This successful approach warrants scrutiny regarding its adaptability to diverse socio-cultural contexts. Consideration should be

given to variations in societal structures and power dynamics, ensuring that such models are tailored to specific local conditions.

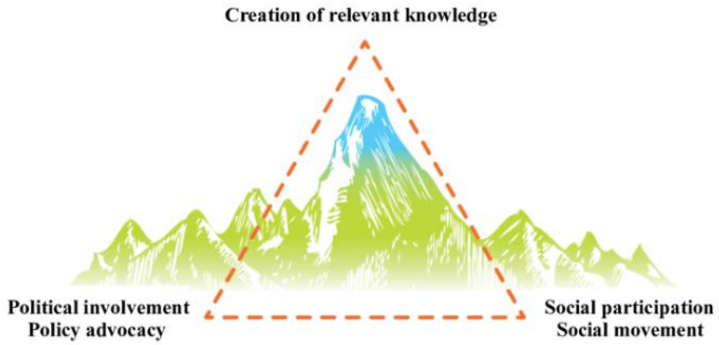

Fig. 3. Thailand's Triangle that Moves the Mountain Health Care Strategy
Sources: (Ungsuchaval, 2016).

The flexibility and speed of the command system, particularly through the Provincial Communicable Disease Committee and Emergency Operations Center, were lauded. However, it is essential to critically analyze potential drawbacks or challenges faced during its implementation. Recognizing and addressing limitations in the command system can contribute to refining future emergency response strategies.

The study rightfully accentuated the importance of community engagement, leveraging the Isan region's social capital and kinship networks. While this approach proved effective in this context, a comprehensive analysis should explore the transferability of such community-centric strategies to diverse cultural settings.

In conclusion, the discussion is strengthened by acknowledging limitations, considerations for localized applications, and specific recommendations. This nuanced approach enhances the study's robustness and contributes to a more comprehensive understanding of effective emergency response management.

5. Conclusion

This phenomenological qualitative research has meticulously explored Thailand's Public Health Emergency Management (PHEM) response to COVID-19, specifically within Health Region 9's COVID-19 Back Home program. The study provided critical insights into the inputs, activities, and processes involved in managing public health emergencies. While highlighting successful strategies, collaborative efforts, and behavioral changes, it is crucial to acknowledge potential limitations and consider localized applications of the identified principles.

The study's findings serve as a valuable repository of knowledge, not only showcasing achievements but also offering a nuanced perspective on the challenges faced. From coordination and collaboration to legal frameworks and community engagement, this research navigates the intricacies of effective emergency response, acknowledging the need for adaptability to varying circumstances.

In conclusion, this research serves as a beacon guiding future endeavors in public health emergency management. The amalgamation of strategic prowess, collaborative spirit, and adaptability delineated in this study sets a precedent for effective crisis response, offering a valuable blueprint for those tasked with safeguarding public health in the ever-evolving landscape of global emergencies.

6. Recommendations

The study identifies best practices for managing public health emergencies in response to COVID-19, primarily through the COVID-19 Back Home program. While celebrating successes, it is vital to critically assess the transferability of these practices to diverse contexts. Recommendations include a

nuanced evaluation of the "Triangle Moving Mountains" strategy, considering variations in societal structures and power dynamics in different regions.

The study highlights the importance of effective management during crises and the willingness of communities to support each other. Recommendations focus on addressing potential challenges, such as truth concealment, through education and fostering understanding. The Isan region's success in community support suggests the need for similar community-centric approaches elsewhere, with adaptations to suit local cultural nuances.

In the final phase, recommendations emphasize the significance of prompt post-disaster recovery, addressing health, economic, and societal impacts. This involves providing opportunities for a return to normalcy and enabling individuals to resume daily activities. The study's emphasis on flexibility and adaptability suggests an ongoing reassessment of strategies to meet evolving challenges.

These recommendations contribute to a more nuanced understanding of effective public health emergency management, acknowledging the need for flexibility, adaptability, and considerations for diverse local contexts.

7. Implications

The study acts as a clarion call, urging stakeholders to glean invaluable lessons from local experiences and offering a blueprint for future outbreak and disaster preparedness. Its findings not only provide actionable insights for agencies to review and refine existing work systems but also emphasize the need for contextualizing and applying these lessons in specific areas. Recognizing the limitations and tailoring strategies to diverse contexts is imperative for effective disease prevention and control.

While finding Thailand’s health agencies exhibited adaptability in crisis management tactics to address COVID-19 impacts and save lives, this study has limitations in sample scope and qualitative data presentation. Incorporating multiple geographic purviews through mixed methods assessments would strengthen result. Additionally, translating findings into tailored training programs on emergency operations protocols promotes applied value. Public health institutions must also continue fostering strong community bonds if anticipating ongoing collective mobilization when facing epidemics.

In summary, the study underscores the imperative for agencies and affiliated associations to derive meaning from these lessons and implement them in specific areas, championing the cause of disease prevention and control measures and policies. It emphasizes the need for a nuanced understanding of local contexts and the adaptability of strategies for comprehensive and effective public health outcomes.

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