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Cambodia's Response to COVID-19: Lessons Learned and Future Directions

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ABSTRACT

Introduction

The COVID-19 pandemic has become a global crisis that requires government responses. Cambodia is one of the countries that reported relatively low numbers of cases of COVID-19 infections; however, the number has been significantly rising since 2021. In this study, we provide an overview of the responses to COVID-19 from the Cambodian government, as it is a very important lesson learned for other resource-limited countries and for the next pandemic.

Methods

The paper was mainly based on a review of daily governmental policy documents, regulations or announcements about COVID-19 on official media websites and social media from January 2020 to August 2021. The authors were also involved in various government subcommittees for controlling the spread of COVID-19 in Cambodia.

Results

Cambodia's COVID-19 responses included (1) preventing the transmission and containment of the outbreak through public health, administrative and technological measures, (2) creating herd immunity and (3) overcoming the economic burden. Public health measures comprised wearing masks, hand washing, physical distancing, screening, contact tracing, quarantine, and treatment. Administrative measures comprise suspending high-risk activities, travel restriction, lockdown and establishing the COVID-19 response management system. Creating herd immunity through the provision of 2 doses of vaccination for adults and children. To overcome the economic burden, the government has developed special assistance programs to support low-income households, such as those whose members died of COVID-19 and whose breadwinner tested COVID-19 positive, and cash assistance to garment factory workers.

Conclusions

The paper has provided an overview of the approaches used by the government in response to COVID-19 that were considered appropriate based on WHO guidance on critical preparedness, readiness, and response actions for COVID-19. The government has put strong efforts into taking into account the risk and the availability of resources to ensure that Cambodia could minimize the risk without overwhelming the healthcare system and stabilize its socioeconomic status.

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Background

Since the first outbreak in Wuhan, China, in December 2019, SARS-CoV-2 has quickly spread to other parts of China and other countries worldwide. As of August 2021, the virus has infected 211 million people and killed 4.4 million people across 221 countries [1]. In response to this global pandemic of coronavirus disease 2019 (COVID-19), countries have undertaken various measures to control transmission, minimize associated deaths and mitigate the impact of COVID-19.

Numerous public health, administrative and economic measures have also been taken to fight against the COVID-19 epidemic in Cambodia. Since the first imported case on 27 January 2020 in Sihanoukville Province, the number of COVID-19 cases remained relatively low, with a total of 516 cases until 20 February 2021, when a community outbreak started in the capital city of Phnom Penh [2]. Consequently, the number of COVID-19 cases abruptly bounced, pushing the Cambodian government to adopt additional measures, including city lockdown, to control the outbreak.

As of August 2021, there were 93,510 COVID-19 cases and 1,916 deaths out of approximately 16 million people in Cambodia. Overall, the efforts to fight against COVID-19 in Cambodia could be divided into three stages (Figure 1): Stage 1, from March 2020 to October 2020, aimed to prevent COVID-19 transmission in the community; stage 2, from November 2020 to February 2021, focused on containment of the community outbreak; and stage 3, from February 2021 to present, dedicated to creating herd immunity through national vaccination rollout and continuing to contain the community outbreak. Once the largest outbreak is under control, the country will prepare for a 'new normal' with the reopening of the whole country's economic activities.
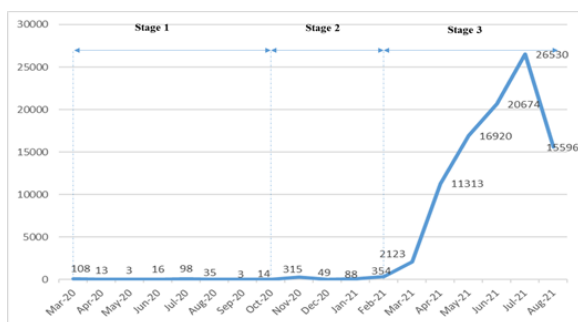
Figure 1: Epidemic Curve of COVID-19 Cases in Cambodia from March 2020 to August 2021

A good understanding of how Cambodia could manage the pandemic could be able to prepare the country for future waves of COVID-19 and other emerging infectious disease outbreaks. It could also share valuable lessons with other countries with similar contexts. Therefore, in this paper, we review the government's key interventions to fight the COVID-19 outbreak, how and when such interventions were implemented and to document lessons learned and suggest some future directions.

Methods

We reviewed Cambodia's response to COVID-19 from the beginning of the epidemic until August 2021, when the country started to recover from the largest community outbreak. We collected data and information related to measures undertaken in response to the COVID-19 epidemic in Cambodia. The collections included the review of relevant policy documents, press releases, official announcements, and author direct observations. Moreover, daily government announcements in the Facebook account of the Ministry of Health, the Prime Minister's Facebook page, and other official government websites and social media accounts were regularly reviewed and tracked on a daily basis. The main author is a member of the Covid-19 subcommittee of rapid response and investigation who was able to attend regular meetings to review official documents and standard operating procedures related to COVID-19.

Results

A. *Measures for the prevention of transmission and containment of the outbreak*

1. *Public Health Measures*

    1.1. Mask wearing, hand washing and physical distance

At the early stage of a pandemic, citizens and all foreigners living in Cambodia were encouraged to wear a mask, keep social distance and use hand sanitizer or alcohol. From 12 March 2021, a new issued sub-decree stated that all abovementioned activities are mandatory activities which was called "Three do's, and Three don't". Both public and private institutions needed to install a system to measure temperature, advised staff to wear masks, disinfected workplace and kept physical distance for at least 1.5 meters [3].

    1.2. COVID-19 screening, contact tracing, quarantine and treatment

The country has already set up rapid response teams for investigating, contact tracing, and collecting samples from suspected COVID-19 cases at hotspots. Suspected cases were taken nasal-pharyngeal samples and tested for SARS-CoV-2 using Polymerase Chain Reactive (PCR) test at laboratories and asked series of question to capture their contacts for testing. Fully equipped laboratory services for testing have been set up at the National Reference Medical Laboratory of the National Institute of Public Health Cambodia and "Institut Pasteur du Cambodge" for PCR COVID-19 testing [4].

Starting from the community outbreak in November 2020, MoH has set up designated COVID-19 testing sites, free of charge [5] for those who were a close contact of a COVID-19 case or those who have symptoms such as having fever of over 37 C with one or more respiratory symptoms (cough, runny nose, sore throat or breathing difficulties). Due to the change in the trend of community transmission in February 2021, rapid tests have been used to test suspected people at the designated testing site for rapid containment of COVID-19 [6].

From April 2021, rapid tests were publicly available and employed in both public and private sectors including hospitals, clinics, companies, and industries to ensure on-time containment of people with infection and to cutoff hidden transmission clusters in communities [7].

For those with a positive result, they were sent to government designated treatment sites to receive free-of-charge care and treatment services. Due to surge in cases and limited health care facilities, 20 centers such as stadiums, schools, private halls, public hospitals have been set up as temporary COVID-19 treatment sites with approximately 13,000 beds available [8]. To accommodate the increasing demand of treatment, the government allowed COVID-19 treatment at the private hospitals and a home treatment for those with mild symptoms.

From May 2020, a 72 hour-COVID-19 free certificate was required for all non-Cambodian flight passengers excluding people holding special visa A and B to enter the country. Addition, all passengers needed to be tested at arrival and waiting for their result within 48 hours. Home quarantines were applied for all passengers tested negative upon arrival. From December 2020, the mandatory quarantine at designated quarantine centers for full 14 days for all traveler entering Cambodia was applied. All travelers were required to test upon arrival and to possess a health certificate issued by the health authorities of the origin indicating COVID-19 negative for 72 hours prior the departure and a deposit of 2,000 USD upon arrival for insurance package for COVID-19 treatment [9].

2. Administrative Measures

2.1. Restricting high-risk activities

From kindergarten to university were temporarily closed in high-risk provinces or cities. All social and cultural activities, including social gathering, wedding, religious gathering, KTV lounges, sport clubs, cinema, museum, and public events, were temporarily banned. Additionally, all in-bound flights from high-risk countries, including Italy, Germany, Spain, France, the USA and Iran, were suspended for 30 days in March 2020 [10] and India in April 2021 [11]. Later, state-owned wet markets were temporarily closed as well. Phnom Penh Municipality placed the ban on alcoholic beverage sales and ordered all culinary businesses and restaurants to stop providing dine-in services for 14 days in April 2021 after the high surge of COVID-19 cases [12].

2.2. Travel restriction

Travel restriction was imposed twice in April 2020 and 2021 to cut off the transmission from high-risk (Phnom Penh, Kandal and Sihanoukville) to low-risk areas. From the February 20, 2021 incident, a curfew hour from 8:00 PM to 5:00 AM was imposed for a month, followed by lockdown in high-risk areas such as Phnom Penh city and Takhmao city [13], Siem Reap [14], Banteay Meanchey [15], Steung Treng [16], Rattanakiri [17], and Sihanoukville [18]. All social gatherings were banned for a month, and people were advised to stay indoors of residence except for necessities (e.g., buying food, medicine, vaccination, prioritized occupation such as medical workers). Areas were classified into "red zone" when there were a high number of infected people, "dark yellow zone" refers to areas that were moderately affected in the communities and "yellow zone" refers to areas that were slightly affected in the communities. After the lockdown was lifted in Phnom Penh, the zone classification remained imposed with two colors, "yellow" and "orange" [19].

2.3. Management system and policy development

To implement all of the measures effectively and in a timely manner, the government established a national COVID-19 committee chaired by the Prime Minister, an inter-ministerial COVID-19 committee chaired by the Minister of Health and a national COVID-19 vaccination committee chaired by the secretary of state. Subcommittees for the management of the point of entry and quarantine, rapid response and investigation into persons with COVID-19, technical and treatment, laboratory service, education training and public affairs, supplies and finance, technology and data, construction and repair, and management and handling of bodies of persons with confirmed or suspected COVID-19 have been established under the inter-ministerial COVID-19 committee [20]. Another reform in management was the establishment of the Standing Committee of the National COVID-19 Committee chaired by Deputy-Prime Minister [21].

Law "Measures to Prevent the Spread of COVID-19 and other Dangerous Infectious Diseases" was signed and in effect on 11 March 2021 [3]. The law outlined the health and administrative measures and other measures to be taken to combat and prevent the spread of COVID-19 and other deadly communicable diseases now and in the future to protect the people's life, public health and public order, as well as to minimize the impact of the disease on Cambodia's social and economic sectors.

The development of various standard operating procedures (SOPs) was made, and clear and rigorous interventions were outlined. For instance, SOP for security and management at the quarantine site for COVID-19, guideline for public health measures in management of COVID-19 death bodies, SOP for COVID-19 rapid antigen test for private health sector, SOP for COVID-19 Antigen rapid test for healthcare service and treatment, SOP for management, care and treatment for COVID-19 at home, SOP for COVID-19 vaccination, guideline for COVID-19 diagnosis and treatment, and a master plan for national COVID-19 vaccination.

3.   Technological Measures

Public health education campaigns that taught the benefits of hand washing, the importance of mask wearing, social distancing and information about vaccination have been broadcast on TV and public billboards. Health education messages have been used as call tunes for mobile phones as reminders for public awareness and alertness. Another COVID-19 digital intervention was the use of 115 Hotline as a first point of contact to give people access to health education and report suspected symptoms [22].

The "STOP COVID" QR code system was placed at all venues, including malls, restaurants, shops and private businesses, to enable authority to carry out contact tracing, help individuals who have been exposed to COVID-19 to self-quarantine, and get tested and treated in a timely manner to prevent the spread of the virus [23].

B.   Measure to create herd immunity

Since February 2021, the Ministry of Health has authorized the emergency use of Sinopharm (China), Sinovac (China) and India's Covishield (Oxford-Astrazeneca) vaccines [24, 25]. The government began the vaccine rolled out for frontline workers, such as higher-ranking officials at all ministries, health care providers, polices, and armies, for approximately 500,000 staff and adults over 60 years old on a voluntary basis. However, since the 20 February 2021 incident, the government has rolled out vaccination for high-risk communities as the main prioritization and issued a sub-decree stating that vaccination was an obligation for Cambodian populations residing in high-risk areas [26].

In May 2021, the government announced its strategic decision of a "flower blooming strategy" – spreading out the vaccine campaign from Phnom Penh, the capital for national rollout of vaccination against COVID-19, with a clear master plan [27]. The government began the campaign on children aged 12-17 years old in July 2021 and the third dose booster for adults aged over 18 years old starting from front-line workers and civil servants to the general public starting in August 2021. By August 2021, the reported COVID-19 vaccination coverage in Cambodia reached 92.5% for adults aged over 18 years old and 79.0% for children aged 12-17 years old. Out of all COVID-19 vaccines utilized in Cambodia, 76.0% were procured from the Royal Government of Cambodia, 15.0% were donated by the government of China and the UK, and 9.0% were from the COVAX facility [28].

Table 1: Chronological summary of various measures taken by the Cambodian government

Measures	Stage 1: March - October 2020	Stage 2: November 2020-January 2021	Stage 3: February 2021 to present
A. Measures for the prevention of transmission and containment of the outbreak of the COVID-19			
Public Health Measures	• Wear mask, social distance, hand washing and setup designated government-paid testing sites		• Requirement of COVID-19 free 72 hours' certificate for all air travelers
	• Requirement of COVID-19 free 72 hours' certificate for all non-Cambodian air travelers	• Home quarantines requirements for air passengers tested negative upon arrival	• Employ of rapid-tests publicly • COVID-19 treatment at private hospitals and home treatment
Administrative Measures	• Flight ban from high risk countries • Travel restriction	• School closure • Temporary ban all social and cultural activities	• Flight ban from high risk countries • Curfew and Lockdown in high risk area • Temporary closure of state-owned markets, ban alcoholic beverage sales and dine-in services • Travel restriction; development of Management System, policy and law
Technological Measures	• 115 Hotline use for contact to give health information and report suspected symptoms; health education message has been used for call tune for mobile phone		
		• Placement of STOP COVID QR code	
B. Measures to create herd immunity			
Vaccination			• Vaccination roll-out for frontline workers • Vaccination roll-out for children aged 12-17 years • Third dose booster for adults
C. Measures to overcome the economic burden due to the COVID-19			
Social Assistance Program	• Cash Transfer for poor and vulnerable household during COVID-19; Cash Transfer Social Assistance Program for Post Lockdown • Cash Transfer Social Assistance for the household whose member tested COVID-19 positive		• Cash Transfer Social Assistance for the household whose members have died of COVID-19 positive and households with the difficult living condition

C. Measures to overcome the economic burden due to COVID-19

Cambodia economics have suffered much from COVID-19. Some private businesses or factories or private schools were forced to close due to a lack of a business stream. The government has continued its support with the launch of the special social assistance program called "Cash transfer for the poor and vulnerable households during COVID-19" [29]. It was implemented from 25 June 2020 to the present to reduce the burden on poor and vulnerable households and not to replace income lost during the pandemic. Another is the "Cash Transfer Social Assistance Program for Post Lockdown" to support low-income households who face difficulties after the large-scale lockdown and "Cash Transfer Social Assistance for the households whose members have died of COVID-19 and households with the difficult living condition whose members tested COVID-19 positive" from the 20 February 2021 incident [30]. A relief package at $40 per month set up by the government through the Ministry of Labor and Vocational Training has been providing cash assistance to over 3,000 workers in garment and tourism sectors who have been affected by the COVID-19 pandemic in Phnom Penh city, Takhmao, Kandal and Sihanoukville provinces [31].

Discussion

To respond to the COVID-19 outbreak, a one-size-fits-all intervention and stand-alone organization did not work effectively. Cambodia needs a cross-cutting intervention comprising public health and administrative measures to stop the outbreak and a measure to recover the effect of COVID-19 on the country's economy. Cambodia is not the only country using multiple interventions to control COVID-19; evidently, some other countries in Asia have been using similar strategies. The Malaysian government imposed mask wearing in public space, social distancing, and travel restrictions, especially a Movement Control Order (MCO), in March 2020 to bring the spread and mortality under control [32]. The rigorous lockdown measures in Asian countries were first imposed in Wuhan, China [33], where there were travel restrictions to ensure strict home quarantine and social distancing by cancelling events, gathering, and closing public places. Singapore has also implemented numerous measures, including travel bans, testing, contact tracing, "Circuit breakers", compulsory mask wearing and social distancing policies, along with financial relief [34]. Thailand's responses included COVID-19 testing for those with suspected symptoms and contact with COVID-19 cases, declared state of emergency by imposing lockdown in March 2020 throughout the country and curfew in April 2020 [35].

The same strategies were also imposed in Vietnam in 2020, including lockdown in March 2020, flight ban, school closure, suspension of all outdoor activities and mandatory non-home quarantine [36].

The greatest challenge in the implementation of these interventions in Cambodia compared to other Asian countries was the resource supply and capacity of the health system response. Therefore, it is unable to compare the success of each country in the containment of COVID-19 since the response and outcome might differ with the country's demographic, political and economic situation. Even with numerous interventions taking place, none have been proven to be highly effective for total pandemic eradication. Cambodia was able to contain the pandemic for the first year of 2020. One of the many factors contributing to last-year success and the regular swift response of Cambodia in COVID-19 containment is government leadership with strong support from local and international partners. For instance, Cambodia announced the names of the COVID-19 cases despite criticism to identify those close contacts when the index case did not reveal all the risky activities. This is the balance between individual rights and community prevention. However, the outbreak in 2021 showed that some rigorous interventions should have been imposed at the early stage, such as mandatory mask wearing, strict quarantine rules and clear guidelines for each intervention for uniformity in implementation. This incident was a lesson learned for the government to start investing in health information technology with a surveillance system and tracking system. Additionally, the government should prioritize the financial investment in the health care system from building sufficient health care infrastructures and efficient human resources, especially public health workforces, for maintaining essential health services as well as for responding to emerging outbreaks. Past investment in surveillance systems and RRT teams was one of the factors contributing to responsive intervention [28]. Moreover, a better investment in health research should be crucially prioritized. It is a stepping stone to provide evidence for the efficient use of resources and effective intervention.

Based on the WHO's interim guidance on critical preparedness, readiness, and response actions for COVID-19 [37], Cambodia's strategies in the management of COVID-19 were considered strong in managing sporadic cases and delaying the community outbreak. However, once the community outbreak took place, it faced challenges in containing the COVID-19 outbreak due to failure of policy implementation, particularly in quarantine site management.

This event was difficult to manage since the spread was uncontrollable; however, the best government could do was to manage the sufficient number of beds for COVID-19 positive cases by setting up temporary treatment sites and allowing treatment in private health care. Additionally, the implementation of priority testing with antigen rapid tests was a wise plan when PCR testing capacity was overwhelming. Approaches taken by Cambodia's government were systemic by taking into account the risk, capacities and resource availability; for instance, the earlier listing of Sinopharm and Sinovac as an emergency use by the Cambodian government in February 2021 before the WHO listing in June 2021 [38]. This was a risky yet wise decision for Cambodia. With limited health care infrastructure, financial resources and a lower proportion of vaccine supply through partners, the choice of purchasing Sinovac and Sinopharm for national vaccination roll out was indeed a country-saving strategy from facing the overwhelming of health services and to prevent excess mortality. However, evidence-based national research was lacking from the government's response to COVID-19, although some small ad hoc research was conducted, and an expert panel on the COVID-19 vaccine was set up, which hindered the timely implementation of the effective intervention and efficient use of available resources.

Conclusions

The Cambodian government's response to the COVID-19 outbreak has shown the world how fragile a country can be without strong leadership and rigorous measures to control it. The responses were wisely decided, implemented in a timely manner and multilaterally coordinated. Cambodia's effort in controlling COVID-19 has shown the world how the solidarity of all government bodies could be achieved with everyone having the same goal. To be able to continue fighting COVID-19, society needs to take responsibility and learn to live with COVID-19. This new normal will familiarize Cambodians with hygienic living norms and prepare Cambodia for a faster reopening to recover the economy.

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