



Assessment of the workload burden on health center staff during the COVID-19 epidemic in Cambodia

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ABSTRACT

Introduction

In Cambodia, health workers at health centers play an important role in providing essential primary health services to the population in their coverage community. The recent epidemic of coronavirus disease 2019 (COVID-19) could cause additional workload burden for them and undermine their role in maintaining the provision of the essential health services or even cause burnout. This study aims to assess the burden of COVID-19 on the workload of health center staff during this epidemic in Cambodia.

Methods

We used the data from the assessment of Workload Indicator of Staffing Need (WISN) for Health Centers (HCs) in Cambodia 2020. A total of 16 HCs in four provinces with 174 health staff, both health care and non-health staff at HCs from January 2019 to June 2020, was included in this study. WISN tool was used to collect and calculate the workload and staff need for each HC.

Results

The findings indicate that beside the current work as providing MPA services, health center staff also involved in the responding in communicable disease outbreak. About one third (31%) of HCs have overworked staff exceeding 1688 hours per year even before the COVID-19 epidemic in Cambodia. Battambang, the province with high activities on COVID-19, and Svay Rieng spent 4% extra time than the remaining province with low activities on COVID-19.

Conclusions

This study confirms that about 70% of HCs do not have the over workload for staff yet even the tasks related to COVID-19 were factored in. Therefore, it is highly recommended that frequency of COVID-19 prevention and community education should be implemented as part of the routine work at HCs of the coverage community on top of the basic health services.

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Introduction

In Cambodia, health workers at health centers (HCs) play an important role in providing essential primary health services called "Minimum Package of Activities" (MPA) to the population in their coverage

community such as maternal, newborn, child health and fixed immunization services, communicable disease services and their control, health education and health promotion services, outreach services - basic and complementary outreach services including immunization, emergency services. etc. These services include main services to be provided in-side of the HC encompassing primary health care as well as main services to be provided at community level, especially outreach activities and community participation in the health care. Efficient and effective

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workforce management is necessary in order to ensure and maintain improvements in health service quality, coverage and health worker performance [1].

Since the initial outbreak of SARS-CoV-2, the virus that causes Coronavirus disease 2019 (COVID-19) in Wuhan, China in December 2019, the disease is transmitting rapidly across the globe. Since January 2020, The World Health Organization has declared the outbreak is a Public Health Emergency of International Concern. As of 2 December 2020, close to 64 million cases have been confirmed, with more than 1.47 million deaths attributed to COVID-19 [2]. Globally, the USA, India and Brazil are among the top three countries with the highest reported cases. In Cambodia, the first case was found in 27 January 2020 among Chinese man who traveled from Wuhan, China. By 30 November 2020, Cambodia has 323 confirmed cases [3].

The public health response led by Ministry of Health, Cambodia, including case detection, isolation, contact tracing and quarantine have been central to Cambodia's response strategy for stopping transmission and slowing the spread of COVID-19 to date [4].

As a consequence of this pandemic, the immense burden of COVID-19 disease could cause healthcare workers with overwork and burnout both at the central level and HC level. Notably, there have been major sources of psychological distress among healthcare workers due to increased work hours, lack of sleep quality, fatigue, the risk of infecting with this virus and the risk of a life-threatening condition for their family. Healthcare workers' burnout and lack of health care workforce have serious consequences for patients and could also lead the medical system to the verge of a devastating collapse [5]. For example, a global survey on the perceptions of health care providers during the COVID-19 pandemic without restriction on geographic location or COVID-19 exposure by the University of Illinois at Chicago, highlighted that 51% of health care providers reported burnout [6]. In addition, a study on the exposure to COVID-19 patients lined to stress and burnout by the Washington University, showed that group of physician trainees who were exposed to patients being tested for COVID-19 had a higher prevalence of burnout than the non-exposed group (46.3% vs. 33.7%) [7]. Given the current context of COVID-19 epidemic, it is necessary to assess the current burden of COVID-19 on the workload of health center staff during COVID-19 epidemic in Cambodia so that specific recommendation could be addressed properly.

Methods

Selection of the study provinces

This study used the data from the assessment of Workload Indicator of Staffing Need (WISN) for HCs in Cambodia 2020. The WISN method is a WHO human resource management tool providing health managers a systematic way to make staffing decisions in order to manage their valuable human resources properly [8]. The data were collected from June to October 2020 with a total of 174 health and non-health staff with 16 HCs in 4 provinces namely Battambang, Kampong Speu, Ratanakiri, and Svay Rieng. Battambang is bordered with Thailand in the southwest of Cambodia. This province has provided the tasks related to COVID-19 prevention and community education activities, as well as specimen collection more frequent than other provinces. Therefore, it was classified as the province which had high activities spent on Covid-19. The remaining provinces were considered as the provinces which had less activities on COVID-19.

In each province, 4 HCs were purposively selected based on the criteria including 1). health center had highest and lowest scores from the latest 50%, H-EQIP (Health Equity and Quality Improvement Program) assessment, and 2). HC with/without bed (**Table 1**).

Table 1

List of study provinces with selected health centers

Battambang (total of 77 HCs, 5 ODs)		Bed status
1	Chhak Roka, Kampong Preah, Ta Meun	no bed
2	Trang	with bed
Svay Rieng (total of 44 HCs, 4 ODs)		
1	Me Sa Thngak, Thnot, Krol Ko	no bed
2	Chark	with bed
Ratanakiri (total of 25 HCs, 2 ODs)		
1	Malek, Teoun Ke, Chong	no bed
2	Kounmum	with bed
Kampot (total of 64 HCs, 4 ODs)		
1	Trapeang Bei, Kampong Kandal, Angk Sophy	no bed
2	Touk Meas	with bed

Data collection

We used WISN tool to collect information and observed working hours spent on all the activities related with/without services in health centers in the whole year of 2019. We also collected the working hours spent on COVID-19 related tasks since its outbreak from January 2020 until October 2020.

Data management and analysis

The collected data were entered into the WISN tool to calculate the staff need for each health center but in this paper, we were interested about HC staff working hours and staff workload burden. The data were imported into STATA for descriptive analysis including frequency, proportion, means of working hours on essential health services and COVID-19 tasks in health centers. In addition, the Excel sheet was used to calculate the working hours spent by health center staff in comparison to the standard working hours. The data related to working hours spent on COVID-19 in 2020 was estimated; then it was compared to the standard working hours too to calculate the workload burden. Finally, we explored workload in higher province activities (Battambang) and the lower workload provinces (remaining provinces) in terms of time spent on COVID-19 activities.

Results

The findings indicate that beside the current work as providing MPA services, HC staff also involved in the responding in communicable disease outbreak. these activities included collecting specimens, providing hand sanitizer and face masks for patients upon entry into the health facility, educating patients, visitors, and health care workers at HCs and community, screening for fever and symptoms at border, HC and home quarantine (**Table 2**)

Table 2

List of activities related to COVID-19 provided by health center staff

No.	Descriptions
1	Collecting specimens
2	Creating an area for spatially separating patients
3	Requiring use of face masks or other respiratory protection
4	Providing hand sanitizer and masks for patients upon entry into the HC
5	Providing visual alerts (signs, posters) at entrances
6	Installing barriers to limit contact with patients at triage
7	Screening for fever and symptoms at border, health center and home quarantine
8	Educating patients, visitors, and health care workers at health center and community
9	Receiving Personal Protective Equipment (PPE) Training
10	Collecting of diagnostic respiratory specimens
11	Duty at quarantine place
12	Meeting on Covid-19 with health and local authorities
13	Receiving online training on clinical prevention and management for COVID-19

As shown in **Table 3**, five out of the 16 HCs (31%) had annually working hours of each HC staff exceeded the standard working of 1688 hours even before the COVID-19 epidemic in Cambodia. And no significant changes were observed, when we factored in the COVID-19 activities in these HCs. Mainly, in Ratanakiri province where three out of the four HCs staff already overworked the standard working hours ranging from 7% to 21% in 2019, and further increased workload from 7% to 22% when factored in the COVID-19 activities (**Table 3**). On average, this was the only province with HC staff overworking the required hours of about 10% and slightly increased to 11% when taking COVID-19 activities into account.

A health center in Battambang (Tamoeun), and Svay Rieng (Chark) had staff working exceeded the required working hours more than 10%. When taking into account the COVID-19 workload, the overworking time in the respective HC increased to 11% and 12% accordingly. In Kampot province, on average staff working about 50% less than the required threshold hours even taking account the COVID-19 workload (**Table 3**). Also, all HC in Kampot worked below the standard required time of 1688 hours per year. Finally, the province with higher COVID-19 activities (Battambang) spent 4% of extra working hours to the epidemic workload. Similarly, Svay Rieng province (lower workload province) spent the same extra working hours of 4% while remaining provinces, HC staff just spent 1% additional working hours due to COVID-19 tasks.

Discussion

Overall, the findings show that HC staff have provided additional services related to COVID-19 prevention in HCs and their coverage communities since the COVID-19 outbreak (January 2020). Only 31% (5 out of 16 HC) reported overwork staff during COVID-19. However, the increased proportion of overworking hours for HC staff ranged from 1% to 4% suggesting non-significant workload contribution to HC's main activities. This workload burden is still minimal when two-third of the HCs (70%) were still below the required standard of working hours. If being compared to the global survey that found more than half of health care providers reported burnout [6]; and about 46.0% of group of physician trainees who were exposed to patients being tested for COVID-19 also reported burnout [7].

However, note that this study conducted from July to October 2020, when the number of confirmed cases of COVID-19 in Cambodia was less than 300 in which

Table 3

The frequency and percentage of time spent in different provinces

Province	HC Name	Hours spent in 2019 by each staff		Hours spent by each staff per year (included Covid-19)	
		QTY	%	QTY	%
Standard working hours per year = 1688 hours (WISN, WHO)					
Battambang	Chhark Rokar	1610	-5%	1,667	-1%
	Kampong Preah	919	-84%	940	-80%
	Tamoeun	1881	10%	1,890	11%
	Trang (with bed)	1371	-23%	1,486	-14%
	Average hours	1445	-17%	1,496	-13%
Svay Rieng	Mesor Tngok	1339	-26%	1,391	-21%
	Krorl Kor	942	-79%	944	-79%
	Thnot	1164	-45%	1,215	-39%
	Chark (with bed)	1868	10%	1,926	12%
	Average hours	1328	-27%	1,369	-23%
Ratanakiri	Kechong	1916	12%	1,977	15%
	Malic	1620	-4%	1,634	-3%
	Toeun	2143	21%	2,161	22%
	Koun Mom (with bed)	1813	7%	1,815	7%
	Average hours	1873	10%	1,897	11%
Kampot	Angk Sophy	1076	-57%	1,077	-57%
	Kampong Kandal	1168	-45%	1,171	-44%
	Trapaing Bei	1160	-46%	1,177	-43%
	Touk Meas (with bed)	1092	-55%	1,093	-54%
	Average hours	1124	-50%	1,130	-49%

87% were imported cases, and the remaining cases were locally acquired [9]. Consequently, these may result in a slightly increase of staff workload as the COVID-19 community transmission cases was zero.

And the activities related to COVID-19 treatment and care or contact tracing are still mainly implemented at the national level of health system. Therefore, the extra work on COVID-19 does not affect the current workforce of health center staff. However, if there will be a community outbreak in the future, more resources especially human resource for health, will be needed for health centers in providing appropriate MPA services as well as the COVID-19 tasks to the community. To some extent, this could include case detection, isolation, contact tracing and quarantine, sample collection and screening. Therefore, health staff's preparedness including training should be ready to tackle this epidemic in the coming future.

This study has several limitations. First, the study used a small sample size. The data collection was conducted in different month and especially before the community outbreak of COVID-19. Therefore, further researches would be needed to assess the current workload of health staff during the community outbreak by expanding to more provinces particularly bordered provinces.

Conclusions

This study confirms that about one third of HC do have the over workload for staff even before the outbreak of the COVID-19 specifically Ratanakiri province. However, the tasks and impact of workload related to COVID-19 were still minimal even being factored in these provinces. Therefore, it is highly recommended that frequency of COVID-19 prevention activities and related tasks should be increased and implemented at the maximum as part of the routine work at HCs and community on top of the basic health services. In addition, to prevent the community outbreak of COVID-19 as well as epidemic preparedness in the future, more actions should be needed from governmental and non-governmental stakeholders to support health care staff at community level such as providing additional training, organizational supports and make the required consumable ready (i.e. EPP, mask, alcohol).

References

- [1] Ministry of Health Cambodia, "Operational Guidelines On Minimum Package of Activities," pp. 4–8, 2017.
- [2] WHO, "Index @ Covid19.Who.Int,"
<https://Covid19.Who.Int/>. p. 1, 2020, [Online]. Available:
<https://covid19.who.int/>.
- [3] The Centers for Disease Control and Prevention (CDC), "No Title," 2020. <http://www.cdcmoh.gov.kh/%0A>.
- [4] W. works closely with the R. G. of C. in the fight against COVID-19, "No Title," 2020.
- [5] E. Shoja et al., "Covid-19 effects on the workload and mental health of Iranian healthcare workers," *BMC Public Health*, 2020, doi: 10.21203/rs.3.rs-27866/v1.
- [6] L. A. Morgantini et al., "Factors contributing to healthcare professional burnout during the COVID-19 pandemic: A rapid turnaround global survey," *PLoS One*, vol. 15, no. 9, p. e0238217, Sep. 2020, [Online]. Available:
<https://doi.org/10.1371/journal.pone.0238217>.
- [7] T. G. Kannampallil, C. W. Goss, B. A. Evanoff, J. R. Strickland, R. P. McAlister, and J. Duncan, "Exposure to COVID-19 patients increases physician trainee stress and burnout," *PLoS One*, vol. 15, no. 8, p. e0237301, Aug. 2020, [Online]. Available:
<https://doi.org/10.1371/journal.pone.0237301>.
- [8] WHO, "Workload Indicators of Staffing Need (WISN) User's manual." 2015, [Online]. Available:
https://www.who.int/hrh/resources/wisn_user_manual/en/.
- [9] CDC, "Situation Summary | CDC," *Cent. Dis. Control Prev.*, vol. 2019, no. September, pp. 1–5, 2020, [Online]. Available:
<https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/summary.html>.