

Summary of User Records from School Infirmaries of Nine Primary Schools in Kandal Stueng District, Cambodia

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Abstract

We reported the summary of user records of school infirmaries to assess injuries and diseases/symptoms among elementary school children in Kandal Stueng District, Cambodia, to better understand the real situations of school children. From 32 schools, nine primary schools were randomly selected, and user records from these schools were obtained from 2018 to 2019. Each school's data were combined and anonymized and then calculated monthly by symptoms and gender. In all, data of 357 students were recorded during the research period. March had the highest number of users in the entire school year. A possible explanation for this is that March and April are the hottest months in this area. High temperature and humidity are major risk factors for bacterial food poisoning. The most common chief complaint was injury. Despite the useful research results, our study has several limitations. Further research is needed to elucidate the real status of children's health.

Keywords: School infirmary, primary school children, health status, Kandal Stueng, Cambodia

Introduction

Cambodia is a lower-middle-income country with a population of 15.7 million and a gross domestic product (GDP) per capita of \$1510 in 2018 (World Bank, 2019). Recently, Cambodia's economic status has developed significantly, with an average annual growth rate of about 7.7%, which saw the country transition from low- to middle-income status in 2016 (World Bank, 2016). Although most Cambodians are still economically vulnerable, with 70% of the population living on less than \$5.5 a day, the proportion of people living below the national poverty line has drastically reduced from 47.8% in 2007 to 13.5% in 2014 (World Bank, 2017).

Despite the economic growth, health outcomes in Cambodia still rank among the poorest in

the Southeast Asian region. For example, the latest Cambodian Demographic and Health Survey reported a national stunting prevalence of 32% and 10% for wasting in children below five years of age, representing one of the highest rates in the region (National Institute of Statistics, 2015). Infectious diseases are a major cause of children's deaths in Cambodia, leading to 48.3% of deaths (Asante AD et al., 2019). School education is crucial in preventing infectious diseases among children; however, most schools in Cambodia do not have infirmaries or health education systems. Therefore, many people lack knowledge about how to keep their children healthy. Our project team established school infirmaries in primary schools in the Kandal Stueng District, Cambodia. We selected nine primary schools as "Leader schools" for establishing a school infirmary. One of the main tasks of a school infirmary is to record the user details. There was no data about school children's health status except for height and weight before our project began. We taught them the importance of recording the reason for visiting the school infirmary as well as the user's name, gender, and year/grade. The school infirmary users' details were recorded from November 2018. We obtained one-year school health records except for vacation months (September and October). Therefore, we reported the summary of user records of school infirmaries to assess injuries and diseases/symptoms among elementary school children in Kandal Stueng District, Cambodia, to improve understanding of the real situations of school children.

Materials and Methods

1. Study sites

Kandal Stueng District, located at the middle part of Kandal Province (See Figure 1), is about 25 km southwest from the capital city, Phnom Penh. It is subdivided into 23 communes and 154 villages with a total population of 76,549 in 1998 (General Population Census of Cambodia, 1998). There are 32 primary schools and 12,372 students in Kandal Stueng District.

From the 32 schools, nine primary schools were randomly selected as "Leader schools." The total students in the leader schools were 5,230. We helped to establish school infirmaries in these schools in 2017. Teachers from these schools visited Japan to learn the management of school infirmaries. We also visited these nine schools to provide advice for better management (Yoda et al. 2018). The person-in-charge of school infirmaries was mainly their president or vice-president; however, some schools had exclusive teachers.

2. User records

The user record contents included the date, name, gender, and the reason to visit the school infirmary. Some schools recorded more information about year and grade, but not entirely. Therefore, we excluded the incomplete information. The records were maintained from November 2018 to August 2019. The person-in-charge recorded the information directly in the notebook, which was then interpreted from Khmer to English by our collaborative staff. Some items with similar meanings were combined under the same categories (i.e., stomach ache and gastric pain).

3. Statistical analysis

Each school's data were combined and anonymized and then calculated monthly by symptoms and gender. We counted symptoms-oriented frequency rather than student-based. However, some students had multiple symptoms. For example, one student had two symptoms of fever and headache; we counted both "fever" and "headache" independently.

Results

In all, data of 357 students were recorded between November 2018 and August 2019. Figure 2 shows the monthly bar chart of total users by chief complaints. March had the highest number of users in the school year. The most common chief complaint was "injury," recorded among 95 males and 61 females, respectively. The second common symptom was stomach ache, recorded among 35 males and 38 females. Details are presented in Table 1.

Discussions

According to our analysis, the school dispensaries were most frequently used in March in the entire school year. A possible explanation for this is that March and April are the hottest months in this area. The average temperature in March is about 35 degrees Celsius and has less than 5 rainy days (Weather and Climate, 2020). These climates are risk factors for bacterial food poisoning. Indeed, March had the highest number of stomach ache symptoms in the year. Furthermore, children tend to go outside because of less rainy days and may easily get injured.

August had the smallest number of users. This was because the schools were closed for summer holidays from the middle of August to the end of October.

Despite our informative research results, the study had certain limitations: 1) Incomplete information; sometimes age, grade, or gender information was missing, and 2) Limited information; only symptoms and very few personalized data (name, sex, and age/grade) were known. Because the reporters were not health specialists, it was difficult to describe symptoms and their estimated causes. However, if we had more information about the weather (rain or shine, temperature, humidity), sleeping time, eating habits, etc., the school children's health status could be understood more clearly.

This study is the first to record data of school infirmary users in Cambodia. We will provide feedback to teachers in Kandal Stueng district, and find better ways to record data to keep their life healthier.

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References

- World Bank. 2019. GDP per capita (current US\$) - Cambodia
Retrieved on January 10, 2020 from <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=KH>
- World Bank. 2016. Cambodia Economic Update Retrieved on January 10, 2020 from
<http://documents.worldbank.org/curated/fr/403961467989523939/pdf/104756-REVISED-PUBLIC-Final-CEU-April-2016-English.pdf>
- World Bank. 2017. Cambodia—Sustaining Strong Growth for the Benefit of All. Washington, DC: World Bank Group
- National Institute of Statistics; Directorate General for Health; ICF International. Cambodia Demographic and Health Survey. 2015. Retrieved on January 10, 2020 from <https://dhsprogram.com/pubs/pdf/fr312/fr312.pdf>
- Asante AD, Ir P, Jacobs B, et al. 2019. Who benefits from healthcare spending in Cambodia? Evidence for a universal health coverage policy. *Health Policy and Planning*. 34(S1):i4-i13. doi: 10.1093/heapol/czz011.
- General Population Census of Cambodia. 1998. Village Gazetteer. National Institute of Statistics. February 2000. pp. 149–152
- Yoda T, Miyamoto K, Doi J, et al. 2018. Introduction of the project to improve school sanitary system and health education for primary schools in Kandal Steung District, Cambodia. *Joint International Tropical Medicine Meeting 2018 Program book*. pp.56
- Weather and Climate. 2020. Climate in Phnom Penh (Phnom Penh Municipality), Cambodia. Retrieved on January 10, 2020 from <https://weather-and-climate.com/average-monthly-Rainfall-Temperature-Sunshine,Phnom-Penh,Cambodia>

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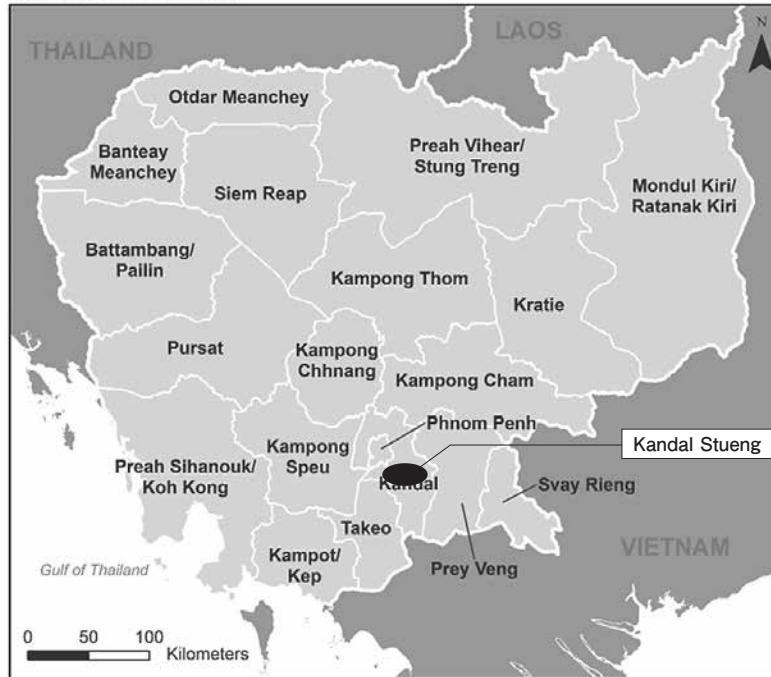


Figure 1. Location of Kandal Stueng District (blacked elliptical area) (This map was quoted from Cambodia Demographic and Health Survey 2014. Available at <https://dhsprogram.com/pubs/pdf/FR312/FR312.pdf#search='Cambodia+Demographic+and+Health+Survey+2014'>)

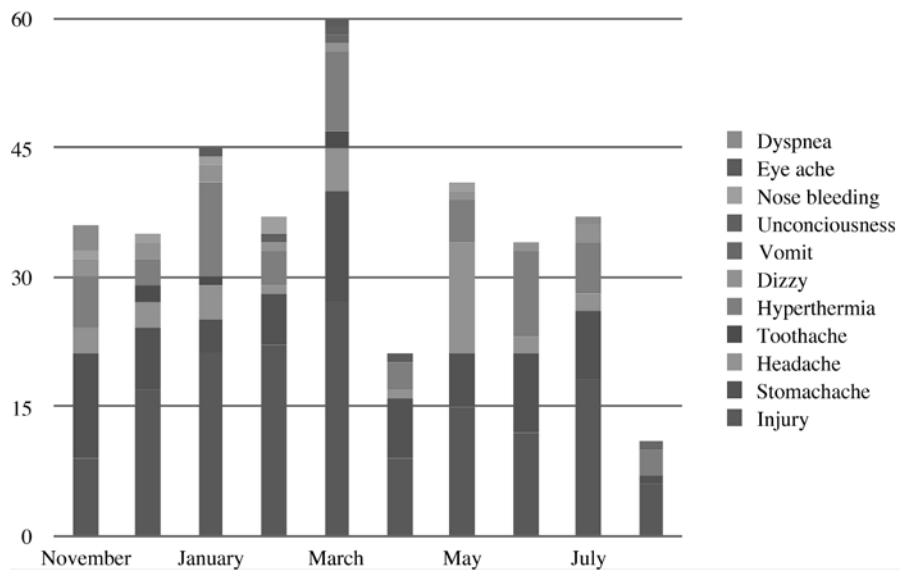


Figure 2. Monthly user number by chief complaints

Table 1. Monthly user data by symptoms and gender

Symptoms	Sex	Novem-ber	Decem-ber	Janu-ary	Febru-ary	March	April	May	June	July	August	Total
Stomachache	Male	5	4	0	4	7	3	3	4	4	1	35
	Female	7	3	4	2	6	4	3	5	4	0	38
Headache	Male	3	0	1	1	1	0	6	2	2	0	16
	Female	0	3	3	0	4	1	7	0	0	0	18
Toothache	Male	0	1	1	0	1	0	0	0	0	0	3
	Female	0	1	0	0	1	0	0	0	0	0	2
Injury	Male	6	14	11	14	13	7	7	9	10	4	95
	Female	3	3	10	8	14	2	8	3	8	2	61
Dizziness	Male	0	0	1	1	0	0	0	0	0	0	2
	Female	2	2	1	0	1	0	1	1	2	0	10
Hyperthermia	Male	0	1	6	3	6	2	2	5	1	2	28
	Female	6	2	5	1	3	1	3	5	5	1	32
Vomiting	Male	0	0	0	0	1	0	0	0	0	1	2
	Female	0	0	0	0	0	0	0	0	0	0	0
Dyspnea	Male	0	0	0	0	0	0	0	0	0	0	0
	Female	3	0	0	0	0	0	0	0	1	0	4
Unconscious	Male	0	0	0	1	0	0	0	0	0	0	1
	Female	0	0	0	0	1	0	0	0	0	0	1
Nose Bleeding	Male	1	1	1	2	0	0	1	0	0	0	6
	Female	0	0	0	0	0	0	0	0	0	0	0
Eye Ache	Male	0	0	1	0	1	0	0	0	0	0	2
	Female	0	0	0	0	0	1	0	0	0	0	1
Total		36	35	45	37	60	21	41	34	37	11	357