

# Can social accountability improve access to free public health care for the poor? Analysis of three Health Equity Fund configurations in Cambodia, 2015–17

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## Abstract

Within the context of universal health coverage, community participation has been identified as instrumental to facilitate access to health services. Social accountability whereby citizens hold providers and policymakers accountable is one popular approach. This article describes one example, that of Community-Managed Health Equity Funds (CMHEFs), as an approach to community engagement in Cambodia to improve poor people's use of their entitlement to fee-free health care at public health facilities. The objectives of this article are to describe the size of its operations and its ability to enable poor people continued access to health care. Using data collected routinely, we compare the uptake of curative health services by eligible poor people under three configurations of Health Equity Funds (HEFs) during a 24-month period (July 2015–June 2017): Standard HEF that operated without community engagement, Mature CMHEFs established years before the study period and New CMHEFs initiated just before the study period. One year within the study, non-governmental organizations (NGOs) stopped operating the HEF nationwide and only the community-participation aspects of New CMHEF continued receiving technical assistance from an NGO. Using utilization figures for curative services by non-poor people for comparison, following the cessation of HEF management by the NGOs, outpatient consultation figures declined for all three configurations in comparison with the year before but only significantly for Standard HEF. The three HEF configurations experienced a highly statistically significant reduction in monthly inpatient admissions following halting of NGO management of HEFs. This study shows that enhancing access to free health care through social accountability is optimized at health centres through engagement of a wide range of community representatives. Such effect at hospitals was only observed to a limited extent, suggesting the need for more engagement of hospital management authorities in social accountability mechanisms.

**Keywords:** Health Equity Funds, community participation, social accountability, access

### Key Messages

- Community-Managed Health Equity Funds (CMHEFs) covered >40% of Cambodia's health centres and engaged a wide range of community representatives from faith-based organizations, local authorities and public health service providers.
- In CMHEF areas, poor people more often used their entitlement to free health care while other vulnerable people were also aided to access healthcare services with locally solicited resources.
- CMHEFs were more resilient to sudden changes in management and decreased support by non-governmental organizations than other Health Equity Fund configurations, especially at health centres, as evidenced by utilization data.
- Community-participation arrangements for health may require reconsideration to enhance social accountability of hospital managers.

## Introduction

Primary Health Care (PHC) as defined in 1978 and endorsed by all member countries of the World Health Organization was a major initiative in the quest for equitable access to appropriate health care for all. PHC was based on the principles of community participation and equity and included intersectoral action (Rasanathan *et al.*, 2011; Rifkin, 2018). Forty years later with the Astana Declaration confirming the PHC approach (Kluge *et al.*, 2018), focus has now turned to Universal Health Coverage, implying that all people can obtain the health care they need without financial hardship (Boerma *et al.*, 2014). Community participation to ensure access to health services remains instrumental, even requiring more reinforcement (De Andrade *et al.*, 2015; Black *et al.*, 2017). The concept of community participation broadened over time and became more operationalized by having citizens to hold providers and policymakers accountable (Fox, 2015; Lodenstein *et al.*, 2017b). The term 'community participation' is often replaced by 'community engagement' and is often actualized in social accountability (Ogbuabor and Onwujekwe, 2018). Social accountability is differentiated from internal (or bureaucratic) accountability such as human resource management (Cleary *et al.*, 2013; Lodenstein *et al.*, 2017a) and is considered relevant especially in situations where the internal accountability measures are not enforced (Fox, 2015). Some of the most common mechanisms to instigate social accountability include health facility committees, social audits, community score cards and community report cards (Molyneux *et al.*, 2012; Olmen *et al.*, 2012; Cleary *et al.*, 2013; Gullo *et al.*, 2016; Maluka and Bukagile, 2016; Lodenstein *et al.*, 2017b).

In the context of UHC, many governments are instituting mechanisms of user fee exemptions for poor and other population groups as a means to stimulate care seeking when sick and maximizing financial risk protection when accessing health care (Yates, 2009; Meessen *et al.*, 2011). However, the extent of uptake of free health care at the point of delivery by intended beneficiaries is not always accomplished due to a variety of reasons, including stock out of medicines, poor quality of care, non-responsiveness of healthcare providers and discrimination of poor people (Meessen *et al.*, 2011; Jacobs *et al.*, 2012; Diaz *et al.*, 2013; Abiuro *et al.*, 2014). Such access barriers could be addressed through community participation, by holding healthcare providers accountable so they are more responsive and provide the required services with the right attitude. However, experiences to date have been mixed (Lodenstein *et al.*, 2017b; Ogbuabor and Onwujekwe, 2018).

The purpose of this article is to describe an approach from Cambodia focused on community engagement to improve poor people's use of their entitlement to user fee-free health care at public health facilities under an initiative known as Community-Managed

Health Equity Funds (CMHEFs). The objectives are first to describe the size of the operations of the CMHEF, including the number and types of volunteers engaged with the scheme, the people benefitting from it and the amount of money collected and spent and second to assess the resilience to maintain continued uptake of health services by pre-identified poor people. As background, we begin by describing how the HEF concept evolved since its inception and clarify the position of CMHEF within these developments.

### CMHEF in context

The Health Equity Fund (HEF) started in 2000 as a pragmatic response to the introduction of user fees in public health facilities in 1996. User fees were found to improve staff attendance at public health facilities but also to impose financial access barriers to poor people (Annear, 2010). The HEF is a social health protection scheme by which the government and development partners pay public health providers the user fees for services rendered to poor people. The poor people are mostly identified beforehand through a nationwide exercise known as the Identification of Poor Households Programme (IDPoor), which uses proxy means testing (Noirhomme *et al.*, 2007; De Riel, 2017). Currently, 2.5 million people are eligible for HEF benefits through identification under the IDPoor.

The main activities of the HEF are threefold: (1) managing and administering the scheme, including reimbursement of user fees for public healthcare providers for services provided to eligible poor patients, reimbursing transport costs for patients admitted at the hospital and providing food stipends when hospitalized, also for caretakers. In addition, proactively identifying hospitalized poor people missed by the IDPoor for eligibility to benefit from HEF services; (2) promoting the scheme in the community, especially amongst intended beneficiaries, and receiving feedback on quality of services and care received; this information is obtained through outreach visits to discharged patients or by use of exit interview; and (3) providing other support like counselling and addressing social issues. All these activities were done by non-governmental organizations (NGOs) (Hardeman *et al.*, 2004; Noirhomme *et al.*, 2007).

During the initial years, a variety of HEF configurations, including criteria to determine poverty status and hence eligibility, co-existed in different operational (health) districts or at hospitals with different funding mechanisms and operational arrangements (Noirhomme *et al.*, 2007). One such HEF initiative started in 2001 in Kirivong operational district, Takeo province, southeast Cambodia, to enable poor people access to public health facilities by working with Buddhist pagodas (Buddhist places of worship). The rationale to work with these religious institutions was based upon the fact that they have extensive community-based networks made up of mainly older people who look after the physical needs of the

Buddhist monks, including food and housing, as monks cannot possess material belongings (Jacobs and Price, 2003). As such, volunteers belonging to 91 pagodas of the operational district collected money during religious events and practices from local communities. Upon suggestion of the Buddhist monks, the Cham Muslim community from five mosques was also included in the initiative. The volunteers also identified poor people using locally formulated criteria and administered respective schemes that were named Pagoda-Managed Health Equity Funds (PMHEF).

Representatives of the religious institutions were integrated into the community-participation structures of the respective health centres. An evaluation in 2004 assessed the effectiveness of this HEF arrangement and indicated that the uptake of health services by eligible poor people inversely correlated with distance to the health facility. In addition, opportunity costs associated with hospitalization prevented timely admissions, suggesting a need to financially support transport to health facilities and food during hospitalization (Jacobs and Price, 2006). The number of identified eligible poor people, 1.5% of the population, was also far below the prevailing poverty incidence of 30%, indicating the need to enlarge the criteria to define poor people. All these measures, however, necessitated more funds to make the PMHEF viable, which necessitated soliciting for external funds and establishing one institute for administrative purposes. As a result, it was decided to create a local NGO, Buddhism for Health (BfH) in 2004 (Jacobs *et al.*, 2007).

In 2005, the government institutionalized all HEFs in the country whereby all related procedures became standardized, including provider payment methods and rates, administrative procedures and amounts paid to eligible poor people for transport to hospitals as well as food stipends. Local NGOs were in charge of overseeing operations of the HEF at facility level and were termed HEF Operators (HEFOs) (Ministry of Health, 2005). From 2006 onwards, poor people were identified through the IDPoor. In addition to this pre-identification exercise, patients admitted at hospitals were screened for user fee exemptions by the HEFO (De Riel, 2017).

Initially, BfH restricted its activities to two operational districts in Takeo province. During the period of May 2005 to June 2016, BfH was contracted by the Ministry of Health under the second Health Sector Support Program (HSSP2), to operate the HEF in 11 operational districts of four provinces namely Takeo, Kep, Kampot and Preah Sihanouk. The HSSP2 was a pooled funding arrangement between the government of Cambodia and selected development partners in support of implementing the second Health Strategic Plan 2008–15. The pooled funding arrangement was termed Sector-Wide Management Approach, to differentiate it from Sector-Wide Approach, as under the former funds could still be earmarked by the development partners to preferred interventions. BfH-managed HEFs also financially supported population groups other than those identified by IDPoor to access healthcare services with money solicited from the community. These population groups comprised older people, people with disability, poor people missed during the IDPoor exercise and orphans.

In 2014, BfH joined partnership with a US private organization with funding by the United States Agency for International Development (USAID) to expand the concept of PMHEF in eight provinces. In the initial four provinces, BfH also managed the HEF, but in the eight new provinces, BfH provided only technical support to the HEFOs. The name of the PMHEF was changed to CMHEF to mark embracing all faith-based organizations, including Christian denominations. Coverage by CMHEFs within the health districts of

the eight provinces gradually expanded from mid-2014 onwards. HEFs were expanded nationwide by the Ministry of Health to all public health facilities at the end of 2015.

In June 2016, following the end of the HSSP2, all activities by HEFOs were halted for 2 years and the administrative tasks related to managing HEF were delegated to the health facilities. The HSSP2 was succeeded by the Health Equity and Quality Improvement Programme (2016–21), which built upon the achievements of the previous HSSPs. The intent of delegating the administration to the health facilities was to lower administrative overheads in response to the government increasingly co-funding the HEF. The scheme promotion activities, feedback collection, counselling and social support activities by NGOs stopped. BfH stopped all activities in the initial four provinces, including the role of HEFO and providing technical support for the CMHEF concept—while it continued providing technical assistance in the eight new provinces only.

In this article, the CMHEFs within Takeo province where the PMHEF, the predecessor of the CMHEF, commenced in 2001 and covered all respective health facilities by 2011 are termed 'Mature CMHEFs'. The HEFs in the eight provinces financially supported by USAID are named 'New CMHEFs'. HEFs in the provinces where the CMHEF approach was never introduced are called 'Standard HEF'. The three HEF configurations—Mature CMHEF, New CMHEF and Standard HEF—co-existed throughout the study period (July 2015–June 2017).

## Methods

To fulfil the objectives of this article, namely, to describe the size of the operations and organizational arrangements of the CMHEF and to assess the resilience of the CMHEF, we use descriptive routinely collected data.

### Organizational arrangements

Information concerning the development of organizational arrangements since inception of the PMHEF concept in 2001 was derived from reports for the various development partners that supported the initiative.

### Geographical expansion and population coverage

Data related to operations by the CMHEF were provided by the respective committees to BfH on a quarterly basis and included information on the amount of money collected and spent, number of non-IDPoor and other vulnerable people assisted with accessing care or provided with social support and number of CMHEF committee members participating at meetings.

To describe the coverage of CMHEF, information for all respective health districts is aggregated and figures for 2016 provided. Data relate to the number of health districts and respective villages covered, number of religious institutions and other institutions engaged and number and kind of volunteers participating in the scheme. As the amount of money collected tended to be influenced by geographical coverage, number of participating religious institutes and maturity of CMHEF, the total amount collected and spent for the year 2016 only is provided for New CMHEFs.

The overview also includes the number of pre-identified poor people, older people, people with disability and others who benefited from the CMHEF as well as their curative services utilization rates at public health facilities.

## Resilience

To assess the impact of CMHEF on uptake of curative health services amongst IDPoor people, we use per capita outpatient consultations (OPD) at health centres and per 1000 population inpatient admission rates (IPD) at hospitals for the period of July 2015–June 2017. Figures are provided per 12-month period: July 2015–June 2016 and July 2016–June 2017 to signify the halting of HEFO activities at the end of June 2016. We also provide these figures for non-poor people to assess whether trends in utilization were similar to the IDPoor people covered under Mature CMHEF, New CMHEF and Standard HEF. Information regarding the number of IDPoor persons per health centre was extracted from the Ministry of Planning's website ([www.idpoor.gov.kh](http://www.idpoor.gov.kh), accessed 21 March 2018), and monthly utilization figures for IDPoor people and non-poor people were derived from the Ministry of Health's Health Information System. The denominator for non-poor people was calculated by deducting the number of pre-identified IDPoor people from the total district population.

During the concerned study period July 2015–June 2017, CMHEF was not introduced at one operational district within the eight USAID-supported provinces only. This operational district served as site for Standard HEF and three operational districts, where CMHEF was introduced during 2014 and located within the same provinces, served as New CMHEF sites. The four selected operational districts for the Standard HEF and New CMHEF were located in the provinces Battambang, Kampong Speu and Kampong Cham and had together a population of 861 506 people, of whom 170 220 (19.8%) were IDPoor. Of the IDPoor people in these four operational districts, 143 435 (84.3%) lived in areas with CMHEF and 26 785 lived in areas with Standard HEF. The five operational districts of Takeo province were selected to represent the Mature CMHEF and had together a total population of 901 774 people, of whom 196 823 (21.8%) were IDPoor. For hospitalization rates in Takeo province, the operational district Dounkeo (161 125 people; 48 963 IDPoor) was excluded since it houses the provincial hospital that serves many people from outside the catchment area (Barber *et al.*, 2004) and thereby inflates the utilization rates. The utilization rates for non-poor people are provided for Takeo province: for outpatient consultations, these are derived from all five operational districts and, for inpatient admissions, data from Dounkeo operational district are not included.

## Statistical analysis

We examined the number of monthly inpatient admissions and outpatient consultations for each HEF arrangement using a linear regression model to statistically test trends within two 1-year periods. The dependent variables or the outcomes of interest are monthly per capita outpatient consultations and per 1000 population inpatient admissions. The independent variables of interest are the type of HEF model including: New or Mature CMHEF and Standard HEF, where the constant represents the non-poor population. We included Years 1 and 2 as an interacted variable with the models to determine the effect of each HEF configuration over the two 1-year periods. This was modelled using the following regression equation for per capita outpatient consultations:

$$Y = \beta_{\text{Year 2}} + \beta_{\text{New Year 1}} + \beta_{\text{New Year 2}} + \beta_{\text{Standard Year 1}} + \beta_{\text{Standard Year 2}} + \beta_{\text{Mature Year 1}} + \beta_{\text{Mature Year 2}} + \varepsilon$$

In the regression equation above,  $Y$  represents the outcome variable,  $\beta$  represents the estimated coefficient for the independent variables or the HEF model and  $\varepsilon$  represents the error term. The

dependent variable is per capita monthly OPD regressed on the New and Mature CMHEF models and the Standard HEF model. The coefficients for the constant and Year 2 represent the monthly number of outpatient consultations amongst the non-poor population in Years 1 and 2, respectively.

The same regression equation was applied for inpatient admissions whereby the coefficients for the constant and Year 2 represent the monthly number of inpatient admissions per 1000 population for the non-poor population in Years 1 and 2, respectively.

To statistically test the differences in utilization by HEF configuration, we compare monthly averages per year for per capita outpatient consultations and per 1000 population inpatient admissions in the first year against the second year using difference in means testing.

For Takeo, we also provide a regression analysis of the amount collected per quarter during the period of July 2014–June 2017 to assess whether these practices are influenced by the cessation of technical support. Data were analysed using STATA 15 (StataCorp 2017).

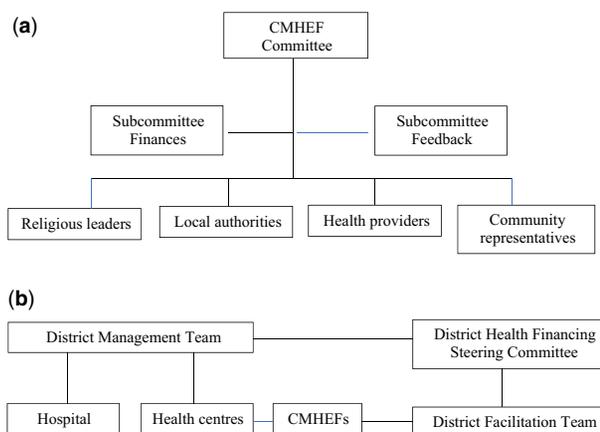
## Results

### Operations of CMHEF: overview

As mentioned, representatives of the religious institutions were initially integrated in the government sanctioned community-participation structures for health: the Village Health Support Group (VHSG) and Health Centre Management Committee (HCMC). The former consists of two elected representatives per village of the health centre's catchment area and the HCMC members and acts mainly as a vehicle for community mobilization and communication between health facility and villagers. The HCMC is made up of three health centre staff and representatives of the respective VHSGs and Communes Councils and should act as an oversight and management mechanisms (Plummer *et al.*, 2013).

Following the change from PMHEF to CMHEF, the organizational structure of the CMHEF, established at health centre level, was changed to a CMHEF Committee with two subcommittees: a Financing Subcommittee and a Feedback Subcommittee. Exact composition differed according to location but was in general composed of (Figure 1a):

- religious leaders from within the health centre catchment area,
- VHSG members (at least one per village),



**Figure 1** (a) CMHEF structure. (b) CMHEFs relation vis à vis the operational district

- local authorities from the Village Administration and Commune Council,
- service providers (health, education) and
- active community members.

Some of the CMHEF Committee members were part of the two subcommittees, each consisting of three to five persons. Volunteers associated with religious institutes were no longer explicitly part of the VHSG and HCMC.

All CMHEF Committee members met at least twice annually at plenary sessions to review income, expenditures and activities during the previous years and to plan for the coming year. The Subcommittees for Financing and Feedback met every 3 months. The CMHEF Committee was responsible for fundraising, determining benefits and eligible target populations, purchasing health services from the health centre and handling the day-to-day financial management. They also monitored health service utilization by respective HEF beneficiaries (HEFB) who included other vulnerable population groups, in addition to IDPoor households, supported by the CMHEF.

In addition, the CMHEF Committees identified locally appropriate solutions to address access barriers beside user fees. Based on the projected income, the committee decided on the sort of benefits they could support. Transport vouchers were introduced following recommendations by community members as they considered transport costs a potential barrier to health centre utilization for HEFB. Earlier attempts to introduce transport reimbursement for health centre consultations by HEFB led to considerable cost increases since the transport was often used for other purposes and administrative oversight was challenging. The CMHEF voucher scheme addressed these issues by allocating a limited number of transport vouchers to each family for a set time period. In case these vouchers were consumed within that time period, no additional transport support would be provided until the next period. Vouchers were allocated according to criteria such as number of household members, people with chronic condition, elderly and severity of disability. Vouchers covered also a caretaker. Use of vouchers was monitored by the Feedback Subcommittee and prices from village to health centre and back were set by the CMHEF Committees.

The collected money was also used for cash donations to extremely poor women following birth at the health facility to enable them to have food; contributions for funeral expenses for poor households; and payment of health services for poor people without IDPoor card. Use of collected money was locally determined and was not standardized across the sites.

The Feedback Subcommittee organized two-way communication with poor households. Through their existing social networks and using their linkages with the Health Centre, the CMHEF Committee enabled communication between service providers and users, thus advocating for improved services provision.

At administrative district level, a District Facilitation Team was established, comprised of representatives of the departments of cults and religion, women affairs, health, education and planning (Figure 1b; precise composition varied by district). Each CMHEF provided an average of US\$50 annually to a district fund to facilitate the operations of the District Facilitation Team. The District Facilitation Team provided support, advice and follow-up to CMHEFs, including collection of quarterly reports for aggregation and submission to the District Health Financing Steering Committee (DHFSC). The CMHEF Committees gathered feedback from poor people and communicated both utilization figures and encountered

constraints to the District Facilitation Team that, in turn, reported these issues to the Health Financing Steering Committee.

The DHFSC was established in accordance with the Ministry of Health Guidelines and chaired by the District Deputy Governor of the administrative district where the hospital is located, and the Operational District Director was the Deputy Chair. Other members included representatives of district departments like woman affairs, planning and NGOs engaged in health activities in the operational district. The DHFSC oversaw the HEF-related monitoring at operational district level and had the task to promote efficient and effective HEF operations and to formulate and implement locally appropriate solutions for identified challenges (Ministry of Health, 2005; 2016a). The CMHEFs' interactions with the District Facilitation Team of which members, in turn, were part of or reported to the DHFSC, enabled upward communication regarding community perception of hospital services. The Ministry of Health guidelines, however, do not foresee community participation at hospitals.

Thus, at operational district level, CMHEF arrangements complemented the activities of the Standard HEF.

### Expansion of CMHEF: geographical and population coverage

During July 2015–June 2016, BfH was both HEFO and provider of technical support (in four provinces) or only provider of technical support to the CMHEFs and District Facilitation Team in eight provinces. Following June 2016, BfH's activities were limited to technical support in eight provinces. Table 1 provides an overview of the three HEF configurations and associated activities before and after cessation of HEFO operations in June 2016.

Table 2 provides an overview of geographical coverage of the CMHEF in 2016, and respective number and kind of committee members. The scheme was operational in 63 administrative districts, encompassing 5437 villages with 1879 pagodas and 174 mosques. A total of 18 896 people was engaged in operating the CMHEFs, the majority of them monks and pagoda volunteers, local authorities and members of the VHSGs.

The total number of IDPoor people in these areas covered by CMHEF was 1 022 925 people (not shown in table) while an additional 136 561 were identified as eligible for CMHEF support: older people, people with a disability, pregnant women and other people such as orphans or households who recently experienced economic shocks. Health service utilization (IPD and OPD combined) by non-IDPoor vulnerable people ranged from 0.16 per capita per annum (pcpa) for people with disability to 0.43 pcpa for older people (Table 3).

During 2016, the total amount of money collected at New CMHEFs was US\$101 330 while US\$58 678 was spent on activities whereby the remaining balance was US\$42 652 (not shown in table). The average amount collected per quarter per operational district with New CMHEFs was US\$1297 while US\$871 was spent during the same time period on transport vouchers and other support services to non-IDPoor vulnerable people.

### Resilience of the CMHEF

Figure 2 provides an overview of monthly per capita outpatient consultations during the 2 years of observation. The vertical line indicates when the changes happened with the management of the HEF. For outpatient consultations, the most statistically significant changes observed with the regression of monthly numbers happened in the year before changes in HEF operations when compared with

Table 1 HEF arrangements and associated tasks

	Before June 2016			After June 2016		
	Standard HEF	Mature CMHEF	New CMHEF	Standard HEF	Mature CMHEF	New CMHEF
HEF Operator	NGO	BfH	NGO with support by BfH to CMHEF Committee and DFT	Hospital	Hospital	Hospital with support by BfH for CMHEF Committee
Admin procedures <sup>a</sup> and feedback	NGO Outreach visits to randomly selected ex-hospitalized patients and exit interviews	BfH Monitoring of service utilization by CMHEF Committee and soliciting satisfaction of services by Feedback Subcommittee + additional feedback and monitoring by BfH as for standard HEFO	NGO Monitoring of service utilization by CMHEF Committee and soliciting satisfaction of services by Feedback Subcommittee + additional feedback and monitoring by DFT + activities HEFO	Hospital None	Hospital Monitoring of service utilization by CMHEF Committee and soliciting satisfaction of services by Feedback Subcommittee + additional feedback and monitoring by DFT	Hospital Monitoring of service utilization by CMHEF Committee and soliciting satisfaction of services by Feedback Subcommittee + additional feedback and monitoring by DFT
Counselling and social support	Through ward rounds for hospitalized beneficiaries and those beneficiaries visited during outreach	Identification of people in need by CMHEF Committee, facilitating transport to health centres and addressing other locally identified needs through locally solicited funds + activities by BfH as for standard HEFO	Identification of people in need by CMHEF Committee, facilitating transport to health centres and addressing other locally identified needs through locally solicited funds + activities by HEFO	None	Identification of people in need by CMHEF Committee, facilitating transport to health centres and addressing other locally identified needs through locally solicited funds	Identification of people in need by CMHEF Committee, facilitating transport to health centres and addressing other locally identified needs through locally solicited funds

DFT, District Facilitation Team.

<sup>a</sup>Initially done by NGOs, including payment of providers, payment for transport and food stipends to patients and post-identification, and later changed to direct payments by government to health facilities, payment for transport and food stipends to patients by the hospital and no post-identification.

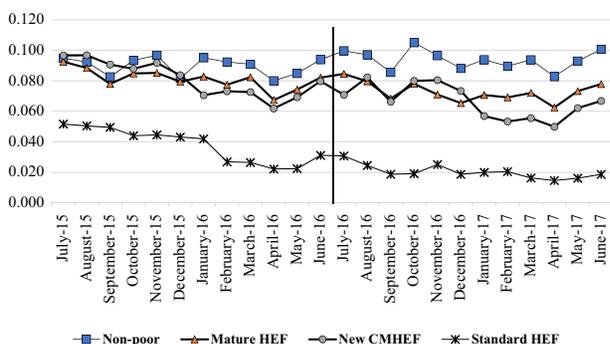
**Table 2** Geographical coverage and composition of CMHEF committees in 2016

Geographical coverage	Operational districts	Administrative districts	Health Centres	Communes	Villages	Pagodas	Mosques
Committee composition	Total members	Monks, pagoda volunteers	Imams, other religions	VHSGs	Local authorities	Service providers	
	18 896	4351	453	4616	7164	1995	174

**Table 3** Non-IDPoor people who benefitted from the CMHEF in 2016

Non-IDPoor beneficiaries	Older people	People with disability	Poor pregnant women	Others	Total number
Number	95 562	22 598	15 312	3089	136 561
Number of services accessed by non-IDPoor	42 045	3655	5598	1340	52 368
Utilization rates for non-IDPoor (pcpa <sup>a</sup> )	0.44	0.16	0.37	0.43	0.38

<sup>a</sup>Any service—inpatient admission or outpatient consultation.



**Figure 2** Monthly per capita outpatient consultations

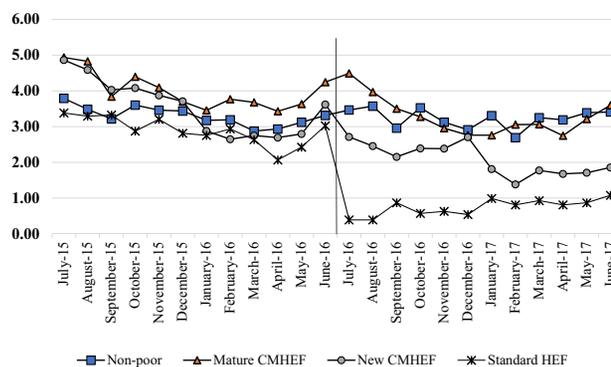
**Table 4** Regression of monthly per capita outpatient consultations during the years before and after change in HEF operations

Variables	OPD per capita (SE)
Year 2 all HEFs	0.0032 (0.0058)
Mature HEF (Year 1)	-0.0083 (0.0058)
Mature HEF (Year 2)	-0.0130 (0.0082)
New HEF (Year 1)	-0.0222** (0.0067)
New HEF (Year 2)	-0.0200* (0.0094)
Standard HEF (Year 1)	-0.0557** (0.0100)
Standard HEF (Year 2)	-0.0207 (0.0141)
Constant	0.0936** (0.0041)
Observations	336
R-squared	0.268

SE, standard error.

\*Significant at 5%; \*\*significant at 1%.

the year afterwards (Table 4). During the initial year, the monthly reported number of outpatient consultations decreased by 0.02 per capita for IDPoor beneficiaries of the New CMHEF while this figure was even more pronounced at 0.06 for IDPoor beneficiaries of the Standard HEF. The observed changes at both HEF arrangements were highly statistically significant ( $P < 0.001$ ). The decline in monthly per capita OPD consultations during the second year continued only significantly at the New CMHEF ( $P < 0.05$ ). These results represent a large change in magnitude as the constant is 0.0936 for districts using the non-poor people utilization



**Figure 3** Monthly inpatient admissions per 1000 population

**Table 5** Regression of monthly inpatient admissions per 1000 population during the years before and after change in HEF operations

Variables	IDP per 1000 people (SE)
Year 2	-0.057(0.266)
Mature HEF (Year 1)	0.822** (0.266)
Mature HEF (Year 2)	-0.707 (0.376)
New HEF (Year 1)	0.03 (0.287)
New HEF (Year 2)	-1.331** (0.406)
Standard HEF (Year 1)	-0.280 (0.421)
Standard HEF (Year 2)	-2.100** (0.595)
Constant	3.175** (0.188)
Observations	288
R-squared	0.258

SE, standard error.

\*\*Significant at 1%.

number. There were no statistically significant changes for Mature CMHEFs.

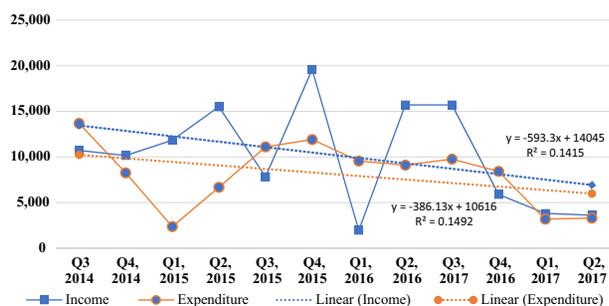
Figure 3 gives an overview of the monthly inpatient admissions per 1000 population. During the year before changes in HEF operations, the only statistically significant observation was an increase in the number of monthly inpatient admissions for the Mature CMHEF of 0.82 per 1000 people (Table 5). However, in Year 2, the differences between HEF models diverged, although all three configurations experience highly significant decreases. The monthly

**Table 6** Average monthly outpatient consultations before and after changes in HEF operations (per capita)

Category	< July 2016 pcpa (SE)	> June 2016 pcpa (SE)	Difference (SE)
Non-beneficiaries	0.09 (0.00)	0.10 (0.00)	0.01 (0.005)
N	60	60	120
Mature	0.09 (0.00)	0.08 (0.00)	-0.01 (0.006)
N	60	60	120
New	0.07 (0.01)	0.05 (0.01)	-0.02 (0.009)
N	36	36	72
Standard	0.04 (0.00)	0.02 (0.00)	-0.02** (0.003)
N	12	12	24

N, total months of observations; SE, standard error.

\*\*Significant at 1% level.

**Figure 4** Regression analysis of amounts collected and spent by Mature CMHEF per quarter (US\$)

number of admissions for IDPoor beneficiaries of the Standard HEF fell by 2.1/1000, amongst those of New CMHEF by 1.3/1000 and for Mature CMHEF the figure was 0.7/1000. These results represent a large change in magnitude as the constant is 3.2 for districts using the non-poor people utilization figures.

Comparison of the monthly averages for outpatient consultations before and after cessation of HEFO activities (Table 6) indicates a statistically significant decrease from 0.4 to 0.2 monthly per capita consultations for the Standard HEF only. After changes in the HEF management, monthly outpatient utilization rates were highest at Mature CMHEF, 0.8 per capita, four times higher than the figure for Standard HEF.

For monthly inpatient admissions (Table 7), the averages decreased highly significant across all three HEF configurations although least amongst Mature CMHEF (-0.76/1000), followed by New CMHEF (-1.39/1000). Standard HEF experienced the largest decrease at 2.16 per 1000 population. Mature CMHEF had the highest average of monthly admissions before and after alterations to the HEF management while Standard HEF performed the least.

Figure 4 gives an overview of the income and expenses for the Mature CMHEF. A gradual non-significant decline in both income and expenditure per quarter is noted: US\$593.3 and US\$386.1, respectively (Figure 2). In July 2017, the balance was still US\$32 636.

## Discussion

Social accountability is reported to facilitate the better use of health services, especially by poor, vulnerable and disadvantaged people (Hamal *et al.*, 2018). However, such evidence in low- and middle-income countries is limited and mostly qualitative in nature

**Table 7** Average monthly inpatient admissions before and after changes in HEF operations (per 1000 population)

Category	< July 2016 (SE)	> June 2016 (SE)	Difference (SE)
Non-beneficiaries	3.17 (0.20)	3.12 (0.17)	-0.057 (0.264)
N	48	48	96
Mature	4.00 (0.21)	3.23 (0.17)	-0.764** (0.272)
N	48	48	96
New	3.21 (0.28)	1.83 (0.20)	-1.387** (0.343)
N	36	36	72
Standard	2.89 (0.11)	0.74 (0.07)	-2.156** (0.131)
N	12	12	24

N, total months of observations; SE, standard error.

\*\*Significant at 1% level.

(Ogbuabor and Onwujekwe, 2018; Scott *et al.*, 2018; Bitton *et al.*, 2019).

It was earlier reported from Cambodia that the approach to community participation for health with the engagement of pagoda volunteers and Buddhist monks achieved positive results (Jacobs and Price, 2006). Since then, this concept was geographically expanded from one operational district to 34 (out of the country's 81), encompassing 432 health centres (out of 1085 in 2013 or 39.8% of the country's total) (Annear *et al.*, 2015). At its peak of operations, a total of 18 896 community representatives of all sort were involved in the operations of the CMHEF, including pagoda- and mosque-associated volunteers, monks and imams, local authorities like village chiefs and commune council members and health service providers.

The quarterly amount of money collected by the Mature CMHEFs reduced over time, although the balance remained positive (>US\$32 000). The observed fluctuations are due to the various ceremonies during which additional funds are solicited from lay people. The money collected by the CMHEFs potentially enabled access to health care for a proportion of people not considered by the IDPoor exercise. A recent assessment found that ~36% of people living below the poverty line do not hold an IDPoor Card (Kolesar *et al.*, 2019). Despite the support accorded by the CMHEFs to such vulnerable people, their utilization rates were much lower than those observed amongst the IDpoor patients, although these figures do not necessarily compare the same: for non-IDPoor HEFB, the utilization rates for OPD and IPD were calculated using the same denominator (pcpa) and the period of observation covered both periods with and without HEFO.

Nevertheless, older people still had a relatively low degree of health service utilization, 0.44 pcpa, despite high needs and a low degree of financial risk protection (Jacobs *et al.*, 2016a), which may be due to unavailability of the required services at the public health facilities (Jacobs *et al.*, 2016b). The very low utilization rate observed amongst people with disability, 0.16 pcpa, suggests that this population groups requires special attention if true equity is to be achieved. People with disability are twice as likely to be ill and incur three to four times more indirect cost when seeking care than people without disability (Palmer and Sok, 2017). Household with disabled people experience a considerable low standard of living, but three quarters of them do not have any support of a social health protection scheme (Palmer and Sok, 2017; Palmer *et al.*, 2019). The support extended by the CMHEF appeared insufficient to enable access to health care, suggesting that additional measures are required.

Scholars have highlighted the importance of the composition of the committees intended to stimulate social accountability as well as the

relationships between committee members and health workers and the advantages of including multiple actors (Molyneux *et al.*, 2012; Cleary *et al.*, 2013; Lodenstein *et al.*, 2017b). They also indicated the advantage of including committee members with skills to monitor performance of health providers and pointed to the benefits of working in a culture where people participate voluntarily in activities (Cleary *et al.*, 2013). Others suggested that the supply and demand of services could be improved if committee members fully supported the committee's objectives (Feruglio and Nisbett, 2018). Volunteers associated with the pagodas and mosques clearly have such culture of voluntarism and scored very well for indicators measuring the degree of appropriateness for community participation identified by Rifkin *et al.* (1988) and those forwarded for sustainability by Sarriot *et al.* (2004) (Jacobs and Price, 2006; Jacobs *et al.*, 2007). Building on ancient practices related to the pagodas' role in securing the society's well-being in Cambodia, associated volunteers were in support of the CMHEF's purpose (Kent, 2008).

It has been argued that Cambodia lacks a culture of participation, which is further hampered by the lack of skilled community facilitators (Plummer and Tritt, 2012). Officially mandated community participation structures for health, the VHSG and HCMC, have been found to be relatively weak in fostering social accountability of healthcare providers due to a variety of reasons including a consensus-driven approach and conflict aversion by committee members, dual roles of village volunteers making up the VHSG and absence of an oversight mechanisms for the delivery of basic social services (Plummer *et al.*, 2013). The degree of accountability tends to be improved when NGOs are involved as they assist in monitoring and enabling citizens' feedback on providers' performance, an issue also reported earlier (Ui *et al.*, 2010). Apparently, in the context of decentralization and deconcentrating, the central government welcomes monitoring of local government, provided this information is fed back to higher level (Rodan and Hughes, 2012).

The community-participation structures of the CMHEFs enabled high consultation rates at health centres during the first year (0.07–0.09 per capita/month), a trend that continued following halting of HEFO activities, albeit at lower levels (0.05–0.08 per capita/month). Both the New CMHEFs and Standard HEF experienced a significant decrease in the number of monthly outpatient consultations during the first year. The reasons for the significant decreases in monthly OPD consultations during the 2 years of observation for New CMHEFs are unclear. Using the same source of data (Ministry of Health's Health Information System), Annear *et al.* (2019) found significant increases in OPD consultations following the introduction of HEF. Earlier findings by Annear (2010) suggested that IPD admission rates by eligible poor people increased during the initial 18 months following the introduction of the HEF where after they decreased. Contrary to his findings, IPD admissions with Mature CMHEFs increased significantly during the first year of observation while they increased slightly for New CMHEFs and decreased non-significantly for Standard HEF. These observations make it difficult to draw conclusions but suggest the need for more investigation regarding the impact of CMHEF on curative health service utilization.

The higher outpatient consultation rates observed at CMHEFs when compared with standard HEF are commendable as it attracts IDPoor people to health centres where they get free care at public health facilities and consequently have lower out-of-pocket expenses (Jacobs *et al.*, 2018). A recent study assessing the added value of extending the HEF from secondary care level to health centres found that it only benefitted the IDPoor people living nearby (Korachais

*et al.*, 2019). Thus, the transport vouchers provided by the CMHEF were relevant. Attracting poor people to health centres as first point of contact not only reduces their health-related expenses but also reinforces the role of the primary care level providers, hereby reinforcing the health system (Morgan *et al.*, 2016; Binagwaho and Ghebreyesus, 2019). The transport vouchers can be considered an additional demand side intervention that was supported by the community. The voucher scheme likely increased health centre consultations by HEFB at CMHEF sites, which in turn may have contributed to the superior consultation rates at these sites in comparison with Standard HEF. Nevertheless, health centre consultations decreased at New and Mature CMHEFs during the 2 years of observations. During the first year of observations, inpatient admissions, for which transport was reimbursed at the three HEF configurations, increased at CMHEF. Contrary such admissions decreased at Standard HEF. These observations make it challenging to draw conclusions regarding the influence of vouchers on health centre consultations at CMHEF.

The situation, however, was different for inpatient admissions at hospitals for which all three HEF configurations experienced a statistically significant decline when comparing the respective rates during the first and second years. The extent of decline was least for CMHEFs, especially mature ones. Although CMHEF facilitated interaction between hospital representatives and district authorities, it did not necessarily engage lower level community representatives whereby their concerns may not have been adequately communicated. This is similar to observations in Nepal where social accountability structures facilitated adequate responses at health centre level but failed to do so at higher levels of the health system (Hamal *et al.*, 2018). The authors call for more efforts to enhance the political capabilities at all levels to improve social accountability. Such enhanced political capabilities could also aid in reducing impediments to social accountability resulting from power relationship imbalances (Cleary *et al.*, 2013; Boydell *et al.*, 2019). For the Cambodian context, this would call for a reconsideration of the architecture of the community participation for health and go beyond the VHSG, HCMC and DHFST while enhancing the decision-making capacities and opportunities of the community representatives to leverage more social accountability from the hospitals.

### Limitations

This study was not designed before major changes happened in the management of the HEF. Instead it seized the opportunity to retrospectively assess the resilience of the CMHEF model. As such, due to geographical expansion of CMHEFs, only one Standard HEF could be included from the same provinces where BfH was active. The fact that we were able to use information for one Standard HEF only may make it challenging to draw inference from the findings presented in this article, especially when comparing CMHEFs with Standard HEFs. On the one hand, the selected operational district may not be representative for the country. For example, extrapolating the average monthly per capita OPD consultations for the first year of observations to a 1-year period implies a rate of 0.49 pcpa, lower than the reported national average of 0.61 for 2016 (Ministry of Health, 2016b). On the other hand, the sample size of HEFB in this operational district and number of observations appeared sufficiently robust to identify statistically significant differences. Another limitation may relate to the 1-year period of observations since HEFO activities stopped, which may have been insufficiently long and may no longer reflect the current situation. The data used were all secondary and potentially prone to incorrect reporting, but it is

unlikely that this bias would differ by site as the total number of IDPoor people documented in this assessment was 367 045. We did not control for other interventions happening in the concerned operational districts. It has been demonstrated that concurrent application of different health financing interventions such as vouchers for reproductive health services, internal contracting with performance-based financing as well as health system improvements do increase care seeking at public health facilities by IDPoor people (Ensor *et al.*, 2017; Jacobs *et al.*, 2018). The degree of community participation at the Mature CMHEF sites was more elaborated than at New CMHEF sites (Jacobs and Price, 2006), which may have influenced the intensity of the respective populations' engagement with the Mature CMHEF activities whereby they performed better than New CMHEF in terms of service uptake. No qualitative information was obtained whereby the more nuanced reasons for the observations could not be elicited. For example, it is not known whether the much higher observed OPD rates at CMHEF were due to better staff behaviour, in terms of interpersonal skills or punctuality and presence at the health facilities, or because of the transport vouchers to the health centres. On the other hand, IPD rates at CMHEF sites were also much higher than at Standard HEF sites while both HEF configurations reimbursed transport costs for hospitalized patients and caretaker when referred. The increased utilization rates may also have resulted in higher income from the HEF, which may have motivated the staff members. Results may also stem from less confusion concerning the HEF following the cessation of activities by HEFO in the CMHEF operational districts than those with Standard HEF whereby less IDPoor patients were deferred or had to pay. Such qualitative information would add valuable information.

## Conclusion

The PMHEF was scaled up from one operational district with 20 health centres to 40% of such facilities in the country, covering >1 million IDPoor people and assisting an additional 136 500 poor and vulnerable people with accessing health care and dealing with other health-related costs. The latter group of people was assisted with money locally raised from the community used at their discretion. IDPoor people in CMHEF areas had superior curative public health service utilization rates in comparison with Standard HEF. Utilization rates for older and disabled people supported under the CMHEF were lower than those of other beneficiaries and suggest a need for additional interventions to enable them access to needed health services. The CMHEFs showed to be more resilient to change at health centres following the cessation activities by HEFO with non-significant reductions in utilization rates, unlike Standard HEF. This resistance to change was not observed for inpatient admissions, which reduced significantly for the three HEF configurations. The findings suggest that ensuring access to free health care can be optimized by improved social accountability, provided that a wide range of community representatives and public healthcare providers are engaged. This is especially the case for primary-level health facilities. To optimize social accountability of hospitals, additional community participation configurations that enhance the decision-making capacities and opportunities of the community should be considered.

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