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# Choices of Commune Health Center for Acute Health Care Services: A Case Study in Thai Nguyen, Khanh Hoa and Vinh Long

### Vu Manh Loi\*

**Abstract:** Using data from the Population and Health Survey conducted in 2009 and 2014 in 12 communes in 3 provinces (Thai Nguyen, Khanh Hoa and Vinh Long), this paper presents analysis of local people's choices of health facility for acute health care services, and explores whether further investment in commune health centers (CHCs) would make sense in the context of a fast-growing private sector in health care at the grassroots level, and whether CHCs help to improve access to health care services of vulnerable groups in the context that the health care costs tend to increase over time. Results show that despite the decline in commune health center (CHC) utilization over time, CHC remains an important first choice health care facility for local people, especially vulnerable groups and those who register health insurance in the CHC. The recent intervention supports by the government/donors in upgrading infrastructure, furnishing high-tech equipment, providing health care models etc. helped to increase the attractiveness of the CHC as the first choice for health care, especially for acute illness. Implications of the findings are discussed.

**Keywords:** commune health center, access to health care services, gender, poor, children, the elderly, ethnic minority

## 1. Introduction

The local health care system, including commune health centers (CHCs) and district health centers/hospitals (DHCs) play critical role in ensuring equal access to preventive and curative health care services for local people, especially such vulnerable groups as women, children, the elderly, the poor and ethnic minority people. CHCs are the places where the demands for health care services are the largest.

<sup>\*</sup> Institute of Sociology, Viet Nam Academy of Social Sciences.

In reality the utilization of CHCs is far below expectation. Many people go to the booming private sector or higher levels of public health care facilities to seek services, bypassing CHCs. It is estimated that about 54-65% of patients receiving treatment at provincial and central levels could have been effectively treated at local health care level (Ministry of Health and Health Partnership Group 2016). The users of district and commune health centers account for 72% of the total number of users of the health care system, but treatment cases supported by health insurance at district and commune level account for only 32% of health insurance beneficiaries (Ministry of Health and Health Partnership Group, 2016). In general, CHCs are capable of performing only 52.2% of the technical services that they are supposed to provide due to the lack of qualified human resources, lack of essential drugs, poor infrastructure and equipment, or existing equipment is worn out or in bad condition (Ministry of Health and Health Partnership Group, 2016). There is underuse of CHCs while there is overload at higher-level health care facilities (Nguyen Hoang Long, 2015). Low income of CHC workers limits their working motivation (Nguyen Thi Hoai An, 2015). The decline of utilization of CHCs is in part also because CHCs mainly provide fragmented treatment services because of financial and revenue reasons, not paying enough attention to preventive care, non-communicable chronic and long-term care, and health care management at home (Nguyen Hoang Long, 2015; Tran Dac Phu, 2015). Another reason for the decline of CHC utilization is the growing competition of private health sector. According to the General Statistics Office, in 2012 in the whole country there were 35,228 health care establishments, including 21,546 private health care establishments, accounting for 61% of the total number of health care establishments in the country. The overwhelming majority of private health care establishments are small or individual clinics or pharmacies (General Statistics Office, 2014).

Recognize the significance of local health care system, on 5 December 2016 Prime Minister issued Decision 2348/QD-TTg Approving Program for Building and Development of Local Health Care Network in New Situation which aims to improve service quality for primary health care, examination and treatment for every persons in the local area in the direction of providing comprehensive, continuous health care services, combining preventive and curative services, strengthening the collaboration among public health care facilities in the area and with facilities at higher administrative levels, ensuring equity and effectiveness in health care for local people (Thủ tướng Chính phủ, 2016). The Program includes the target that by 2020 "At least 90% of commune health stations will have enough conditions for medical examination and treatment supported by medical insurance and can perform at least 80% of the list of technical services at the commune level", and by 2025 these figures should be 100% (Thủ tướng Chính phủ, 2016). Most recently, the Central Communist Party of Viet Nam issued Resolution No. 20/NQ-TW of October 25, 2017 on enhancing the protection, care and improvement of the people's health in the new situation which emphasized the task of strengthening local health care system (Trung ương Đảng Cộng sản Việt Nam, 2017). The new reform in the health sector is geared toward the shift from provider-centered to user-centered approach, emphasizing quality of services and satisfaction of users.

In this context, it is important to understand local people's choices of health facility for health care services, and whether further investment in CHCs would make sense in the context of fast growing private sector in health care at the grassroots level. Equally important is whether CHCs help to improve access to health care services of vulnerable groups, such as women, children, the elderly, the poor, and ethnic minority people in the context that health care costs tend to increase over time. This paper is intended to provide some answers to these questions.

### 2. Data and Methods

Data for this analysis are taken from the Population and Health Survey conducted by Viet Nam Academy of Social Sciences (VASS) in collaboration with US-based Social Science Research Council (SSRC) in 2009 and 2014 in 12 communes in 3 provinces (Thai Nguyen, Khanh Hoa and Vinh Long). The sample of 2009 survey round (Round 1, or R1) included 3600 households for structured interviews and 452 individuals for in-depth interviews. The sample of 2014 survey round (Round 2 or R2) include 3921 households (including 2979 households interviewed in R1) and 525 individuals for in-depth interviews. Due to the limit of the paper, the discussion here is based only on quantitative data from the household surveys and concerns mostly acute diseases.

The 12 selected communes have the CHCs with different levels of support from the government and donors (Atlantic Philanthropies, Save the Children, and Marie Stopes International) for construction/repair of CHC building, equipment, training for reproductive health care, maternal and child health care, and health management information system. Based on the level of support by the Government and the donors, the studied communes are grouped into more treated commune (1 commune), middle treated communes (5 communes) and less treated communes (6 communes). In this paper, "acute" refers to health problems in 4 weeks prior to the survey.

### 3. Findings

Table 1 shows percentages of those in the 12 surveyed communes who had an acute and/or chronic illness but did not seek treatment in first and second survey rounds. For acute patients, the proportions of those who did not seek treatment declined, often sharply, in 10 out of 12 communes during the period 2009-2014. The decline of non-treatment patients is observed in all communes where CHCs received more investment interventions (middle and more treated communes); the 2 CHCs with increases of non-treatment patients are in the group of CHCs with less investment interventions (less treated). For chronic patients, the decline of non-treatment patients is observed in 6 communes and it increased in the remaining 6 communes. It seems that levels of intervention to improve CHC performance do not have clear impact on reducing the proportions of non-treatment among chronic

patients. Table 1 also shows that in 2014 the proportions of non-treatment patients are lower (often considerably lower) for acute patients than for chronic patients in all but 3 communes, two of which were less treated. This fact appears to be consistent with the observation that chronic illness treatment and management are not the priority of CHCs (Nguyen Hoang Long 2015; Tran Dac Phu 2015).

Table 1. Percent of those with acute and/or chronic illness not seeking treatment (highlighted entries are those for which the proportions not seeking treatment did decline between rounds of the survey)

		Acute patients		Chronic patients	
	Commune	2014	2009	2014	2009
More treated	KH1	7.3	31.4	8.5	17.2
Middle treated	TN1	6.1	12.3	15.1	12.7
	TN4	18.4	31.6	10.0	25.2
	VL1	2.2	2.6	11.2	6.8
	VL2	3.3	5.9	7.5	4.9
	VL3	3.0	4.4	9.1	4.9
Less treated	TN2	6.0	21.0	17.3	17.7
	TN3	9.5	16.4	10.0	12.7
	KH2	5.1	10.4	8.8	16.9
	KH3	8.3	19.3	18.0	10.0
	KH4	10.7	8.8	10.4	10.2
	VL4	7.7	3.2	6.6	6.9

Source: Data from VASS-SSRC Population Health Survey 2009-2014.

Table 2 shows percentages of acute and chronic patients' choices of health care facilities by survey years and level of the government and donors' investment interventions (respondents were allowed to give up to 2 choices and hence the percent numbers often add to more than 100%). For the less treated communes, there are few changes in proportions of acute and chronic patients using CHCs over time and few differences between males and females. For the more treated communes, the proportions of chronic patients using CHCs had declined by about 10 percent points from 2009 to 2014 for both males and females. The decline over the same time for male acute patients is by about 6 percent points, and for females the decline is about 3 percent points. Despite these declines in proportions of acute patients using CHCs over times, the percentages of acute patients using CHCs in the more treated communes are still considerably higher than that in the less treated communes, except for males in 2014.

For users of higher-level public hospitals, the proportions of acute patients using higher-level public hospitals increased more than 3 times in more treated communes for both males and females, and increased more than 2 times in the less treated communes. The increases

to a less degree are observed also for chronic patients in more treated communes, but for the less treated communes the proportion of patients using higher-level hospitals declined notably only for males.

Table 2. Choices of health care facilities among acute and chronic patients in 2008 and 2013 by sex (%)

Health	More and middle treated communes			Less treated communes				
Providers	2009 2014		014	2009		2014		
	Male	Female	Male	Female	Male	Female	Male	Female
Acute patients								
CHC	29.1	32.8	23.2	29.6	24.4	25.4	24.5	25.6
Higher level public								
hospital	14.6	14.6	48.9	44.3	21.1	22.7	53.9	51
Private providers	23.7	25.2	17	18	14.6	16.8	21	17.1
Pharmacies	6	6	19.6	25.7	3.1	2.6	14.8	17.8
Chronic patients								
CHC	29.5	34.2	19.4	24.7	20.1	19.4	17.8	21.1
Higher level public								
hospital	45.4	41.6	53.4	57	55.7	52	47.7	51.7
Private providers	28.7	38.6	27	30.4	27.4	31.4	24.6	29.5
Pharmacies	4.6	3.5	12	15.5	1.9	2.2	11.6	12.4

Source: Data from VASS-SSRC Population Health Survey 2009-2014.

For those who used private providers (not including pharmacies), the proportions of acute patients using private providers in more treated communes declined over time for both males and females whereas the proportions of acute patients using private providers for less treated communes increased slightly for both males and females. For chronic patients, the proportions of those who used private services declined for both males and females in both the more treated and less treated communes.

It is common in Viet Nam that people go to drug stores or pharmacies to buy drugs to treat themselves or their family members without first consulting a medical practitioner. They may do so based on their past experience or as the result of consultation with the pharmacists who sell the drugs. Small drug stores or pharmacies are booming everywhere in Viet Nam, even in rural remote areas. In the 12 communes in the studied sample, one can see small drug stores in all villages. In Table 2, the proportions of those who used pharmacies increased considerably over time for both acute and chronic patients as well as for both males and females and in both less treated and more treated communes. Local pharmacies clearly are serious competitors for the local CHC for attracting patients.

Figure 1 shows results of difference-in-differences analysis comparing the impacts of government/donors interventions on utilization of CHC by selected vulnerable groups (ethnic minorities are not included because they are present only in 4 of the 12 communes; children are also not included in this example). As it is clearly from Figure 1, government/donors' interventions had helped to increase utilization of CHCs for the poor while the non-poor utilization declined. Over time the utilization of CHCs for both males and females declined, but the interventions seem to slow down the decline for females as compared to males. A similar result is observed for elderly as compared to non-elderly people. In short, government/donors' interventions appear to do more to make CHCs attractive for the poor, females, and elderly than for non-poor, males, and not elderly people. Detailed analysis revealed that CHCs are also the facilities that retain the highest proportions of clients who had acute illness in both survey rounds (data not shown).

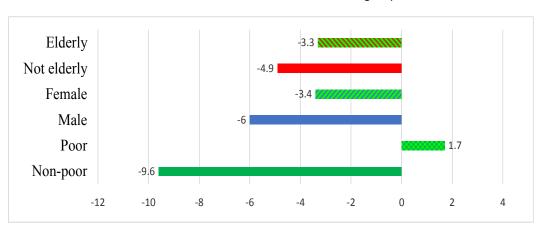


Figure 1. Difference-in-differences impacts of government/donors treatments of CHCs over time for selected social groups

Source: Data from VASS-SSRC Population Health Survey 2009-2014.

Logistic regression models for choosing CHC for health care services

The choices of CHCs for treatment of an illness may depend on many variables. Multivariate regression method allows consideration of the effects of one variable while controlling for effects of all other variables, making the judgement of impact of each variable more valid and trustworthy.

Table 3 shows 3 logistic regression models predicting the use of CHC for treatment of acute illness based on a number of personal characteristics (sex, age, education, ethnicity,

religion, status of health insurance), household features (poverty status, distance to CHC, distance to closest other public health facility), commune features (general level of treatment of the CHC or specific treatments of CHC) and survey rounds.

Model 1 shows the effects of personal characteristics, poverty status of the household, general level of treatment of the CHC and survey rounds (time dimension). Model 2 is different from Model 1 only by replacing "All treatments combined" by specific support for CHC in term of high-tech equipment. The variables of level of building support and equipment support are highly correlated and only one can be included in the regression model. For Model 3, the intervention is in the form of supporting the CHC to implement the family doctor model of MOH. The coefficients in Table 3 are odds ratios, which compare the likelihood that the dependent variable (using the CHC for treatment of an acute illness) occurs when the given category of that independent variable applies, compared to the reference category (odds ratios=1). If the odd ratio is less than 1, the likelihood for people in the given category to use CHC is less than for the reference category, and the other way around if the odd ratio is larger than 1. The stars (\*) refers to the level of statistical significance of 0.05 (\*), 0.01 (\*\*), or 0.001 (\*\*\*). The significance of Hosmer and Lemeshow test is more than 0.05, indicating that the model is a good fit with the data.

As is clear from Table 3, males are significantly less likely to use the CHC than females while other variables being equal. As to effects of age, people in all the younger age groups are significantly less likely to use the CHC than the elderly (aged 60 or above). Among the younger age groups, children aged 0-5 have the highest odds ratios. In other words, children and elderly are more likely to use the CHC than those in the middle age groups. There are no clear effects of education or ethnicity on the tendency to use the CHC while controlling for other variables.

A puzzling finding is that those who follow Buddhism appear to be significantly less likely to use the CHC than Catholic or Protestants (and those who claim no religion). Perhaps Buddhists prefer other service providers, such as traditional oriental practitioners, over the CHC for acute illness. This issue needs further study.

The effect of household poverty status is as expected; poor people are nearly twice more likely to use the CHC than non-poor people and the difference is statistically significant, other variables being equal. CHCs are designed to provide low cost health care services for local people, especially for the poor. Despite the decline in CHC utilization over time as mentioned above, the CHC remains important health care destination for the poor.

Those who have health insurance (HI) registered at the CHC are much more likely to use CHC services than those whose HI is registered somewhere else or those who do not have HI. This is in part because HI helps to reduce the cost of treatment, in part because if a patient wants to go to higher level health care facility using HI, he/she has to have reference from the CHC if HI was registered there. Many qualitative interviews documented about the role of CHC as the first destination for reference to higher-level hospitals.

Table 3. Logistic regression models for choosing CHC for health care services (odd ratio)

Variable		Model 1. All treatments	Model 2. CHC hi-tech equipment	Model 3. Family Doctor
Sex	Female	1.222*	1.218*	1.222*
	Male	1	1	1
	0-5	0.737*	0.745*	0.731*
Age	6-14	0.677*	0.678*	0.667**
	15-49	0.497***	0.495***	0.492***
	50-59	0.574**	0.563***	0.572***
	60+	1	1	11
	Primary or less	1.194	1.158	1.201
Education	Lower secondary	1.115	1.103	1.108
	Higher secondary	1	1	1
	Don't know	0.701	0.691	0.716
Ethnicity	Kinh	0.854	0.836	0.842
Lumbity	Ethnic minority	1	1	1
	Buddhism and similar	0.638**	0.554***	0.638**
Religion	Catholic/Protestant	1	1	1
	No religion	0.776	0.726*	0.774*
	Non poor	0.545***	0.533***	0.554***
Poverty status	Poor	1	1	1
HI registration	No HI	0.273***	0.278***	0.270***
place	HI not in CHC	0.369***	0.381***	0.361***
piace	HI in CHC	1	1	1
	Less than 1 km	2.591***	2.738***	2.542***
Distance to	1 to less than 2 km	1.916***	1.951***	1.873***
CHC	2 to less than 3 km	1.570***	1.720***	1.576***
CITIC	3 to less than 4 km	1.311*	1.320*	1.289
	4 km or more	1	1	1
Distance to	Less than 5km	0.487***	0.499***	0.477***
other pub	5 to less than 10km	1.042	1.104	1.053
facility	10km or more	1	1	1
All 4 4 4	Round 1	2.459***		
All treatments combined	R2 more treated	1.213		
combined	R2 less treated	1		
CLIC bimb to ab	Round 1		2.863***	
CHC high tech	R2 more treated		1.742***	
equipment	R2 less treated		1	
Family Doctor	Round 1			2.355***
	R2 more treated			1.727**
	R2 less treated			1
Constant		1.455	1.321	1.564
Hosmer and		0.146		
Lemeshow Sig.			0.126	0.200
N		3201	3201	3201

Source: Data from VASS-SSRC Population Health Survey 2009-2014.

Distance to the CHC is another factor that has strong effects on the likelihood of using CHC. Those who live near the CHC (less than 1 km) are about 2.5 times more likely to use CHC than those who live 4 or more km away. The farther away they live, the less likely they use CHC. Distance is also mentioned frequently in qualitative interviews as an influential factor in the choice of CHC for health care services.

Another competing force is the location of other public hospitals/health care facilities. For some people, going to the CHC in the neighbouring commune, or to the district hospital, or to other public hospital maybe faster and more convenient than going to the CHC in their own commune. The presence of other public facilities nearby is a really important factor influencing the decision to use the CHC or not. Those who live near other public health facilities are significantly less likely to use the CHC than those who do not live near any other public health facility.

As to the effects of government/donors' treatment of CHCs, Model 1 does not show any significant effects of all treatments combined on the likelihood of using the CHCs. It does show that compared to the 2nd survey round, people in the 1st survey round used the CHC almost 2.5 times more, other variables being equal. That means there is significant decline in utilization of CHC over the period from 2009-2014. When testing effects of specific interventions, Model 2 and Model 3 show that supporting CHCs with high-tech equipment (and building) and/or implementation of family doctor model do have strong positive effects on the likelihood of using CHC for acute illnesses. In survey round 2, those who live in communes with government/donors' support of CHC in term of high-tech equipment or family doctor model are 1.7 times more likely to use CHC for acute illness treatment than those who live in less treated communes, other variables being equal.

Findings from Table 3 are that CHCs are important primary health care facilities for vulnerable groups (women, children, the elderly, the poor), those whose HI is registered at the CHCs, those who live close to the CHC, and those who live far away from another public health facility. There is a trend of declining CHC utilization over time, but government/donors support, especially in term of high-tech equipment (building) and family doctor model, helped to increase the likelihood of CHC utilization.

In survey round 2 respondents were asked to describe in detail the sequential steps they took in their therapeutic itinerary when they got an acute illness. Using these itinerary data, Table 4 shows logistic regressions of using CHC as the first choice for acute patients. Results of regression Model 4 and Model 5 broadly consistent with regression models in Table 3. Females are more likely to choose CHC as the first choice than males, although the difference is not statistically significant. People of the middle age range are less likely to choose CHC as the first choice than those younger or older (reaching statistical significance in Model 5).

Education once again and work do not have any significant effect. Interestingly, in Model 4 and Model 5 Kinh/Hoa people<sup>1</sup> are much less likely than ethnic minority people to choose the CHC as the first choice.

<sup>&</sup>lt;sup>1</sup> Kinh is the majority ethnic group, Hoa is Vietnamese with Chinese origin who are very similar to Kinh people in many aspects and who are not considered as a vulnerable group.

Table 4. Logistic regressions: CHC as the first choice for acute patients (Itinerary data, odd ratio)

			Model 5.
Variable			CHC is the
		Model 4. CHC is the	first choice
		first choice (specific	(treated
		interventions)	communes)
	Female	1.139	1.136
Sex	Male	1	1
	29 or less	0.961	0.931
	30-49	0.755	0.726*
Age	50+	1	1
	Primary or less	1.167	1.209
	Lower secondary	1.013	1.014
Education	Higher secondary+	1	1
	Kinh/Hoa	0.657**	0.667**
Ethnicity	Ethnic minority	1	1
	Non agriculture	0.858	0.877
Work	Agriculture	1	1
	No HI	0.237***	0.238***
	HI not in CHC	0.329***	0.330***
Health Insurance	HI in CHC	0.3 <u>23</u>	0.550
Tiodili iliodialioo	Non poor	0.658**	0.648**
	Near Poor	1.128	1.084
Poverty status	Poor	1.120	1.004
1 Overty status	Less than 2 km	1.959**	1.992**
Distance from home	2 to less than 5 km	1.293	1.278
to CHC		1.293	1.270
	5 km or more	I	
Distance to nearest	Continuous variable in	4 005***	4 0 40***
public facility	km	1.035***	1.042***
Niconalis and a sector	4 days or more	1.114	1.099
Number of acute	Don't know or missing	1.329	1.384
days	0-3 days	1	1
CHC building	Less supported	0.735*	
supported	More supported	1	
	No Doctor	0.919	
CHC Doctor	With Doctor	1	
	No MSI	0.766*	
MSI	MSI	1	
	More treated		1.768*
	Middle		0.971
Treated communes	Less treated		1
Constant		0.822	0.56
Hosmer and		·	
Lemeshow test		0.806	0.892
Lemeshow test		0.000	0.03£

Source: Data from VASS-SSRC Population Health Survey 2009-2014.

Effects of HI registration, poverty status, distance to the CHC, and distance to the nearest public health care facility are all significant and consistent with the results presented in Table 3. The number of acute illness days does not have any significant effect.

Government/donors' support in term of CHC building has a significant effect encouraging local people to choose the CHC as the first choice. Those who live in communes with Marie Stopes International (MSI) support are also more likely to choose CHC as the first choice than those living in communes without MSI support. Interestingly, having medical doctor does not have any significant effect on the propensity to choose CHC as the first choice for acute health care. This finding should be cautiously interpreted because it goes against conventional belief that having a medical doctor would increase the attractiveness of the CHC.

In Model 5 when all government/donors' treatments are combined, that combined variable clearly shows that people living in the more treated communes are about 1.8 times more likely to choose CHC as the first choice than those who live in less treated communes. This is consistent with the findings presented in Table 3.

### 4. Conclusions

The papers shows that despite the decline in CHC utilization over time, the CHC remains an important first choice health care facility for local people, especially vulnerable groups such as women, children, the elderly, the poor, and ethnic minority people, and those who register their HI in the CHC. The intervention supports by the government/donors recently, especially the support in term of upgrading infrastructure and high-tech equipment, health care models such as MSI or family doctors, helped to increase the attractiveness of CHC as the first choice for health care, especially for acute illness.

The policy implications of these findings are that more investments in CHC are necessary to ensure equal access to health care services for vulnerable groups. We found no clear positive impact of past investments in CHCs on treatment of chronic illness; this suggests that in the current local health care reform special attention should be put on extending the capacity of CHCs to provide preventive and curative health care services in a more comprehensive way, including both acute and chronic health care as well as preventive health services.

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