

Costing of commune health station visits for provider payment reform in Vietnam

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(Received 13 August 2013; accepted 11 April 2014)

Expanding effective coverage in Vietnam will require better use of available resources and placing higher priority on primary care. The way providers are currently paid does not give priority to primary care and does not reflect the costs of delivering services. This paper aims to estimate the unit costs of primary care visits at commune health stations (CHS) in selected areas in Vietnam. Seventy-six CHS from two provinces in northern Vietnam were studied. Costs were calculated from the perspective of the CHS using the top-down costing using the step-down cost accounting technique in order to estimate the full cost of delivering services. On average, the cost of one outpatient visit in mountainous, rural and urban CHSs was VND 49,521 (US\$2.40), VND 41,375 (US\$2.01) and VND 39,794 (US\$1.93), respectively. Personnel costs accounted for the highest share of total costs followed by medicines. The share of operating costs was minimal. On average, CHSs recover 18.9% of their total cost for an outpatient visit from social insurance payments or fees that can be charged patients. The results provide valuable information for policy-makers as they revise the provider payment methods to better reflect the costs of services and give greater priority to primary care.

Keywords: Costing; primary health care; capitation; provider payment

Introduction

Health provider payment systems – the way health providers are paid to deliver services – are increasingly recognised as a powerful tool in the pursuit of universal health coverage (UHC) (Özaltın, *in press*). Provider payment systems are key to ensuring the financial sustainability of health systems and for allocating resources efficiently. As countries expand coverage and move to health financing models that separate the purchaser from providers of health care, purchasers typically opt to pay for outputs rather than inputs. Traditional budget payment systems are no longer sufficient, and new ways of paying providers for services or packages of services are needed. In their provider payment reform efforts, many countries face the challenge of establishing a cost basis for payment rates – the average cost per unit of service provided – to better leverage provider payment policy for UHC. For example, understanding the cost of delivering primary care and preventive services can help ensure that providers are adequately paid for these services and are motivated to deliver them. Also, the costs of delivering health services in rural and remote areas often are higher than in urban

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areas, and appropriate cost-based payment adjustments can improve equity. In many low- and middle-income countries, however, routine cost information is not available to inform provider payment policy, and costing studies are needed to fill that gap (Langenbrunner, Cashin, & O'dougherty, 2009).

In Vietnam, health insurance was introduced in 1992 to help mobilise financial resources for health care. The insurance system is implemented by Vietnam Social Security (VSS) with policy oversight by the Ministry of Health (MoH). The coverage of health insurance in Vietnam increased from 16% of the population in 2002 to 67.5% in 2012 (Ministry of Health of Viet Nam, 2011). The Vietnamese Government is committed to achieving universal coverage by 2020, and the reform of provider payment systems has been identified as crucial to supporting this process (Ministry of Health of Viet Nam & Health Partnership Group, 2011, 2012, 2013).

Directing more resources and services to the primary care level, particularly commune health stations (CHSs), which are the main primary health care facilities in Vietnam, will be essential for ensuring access to services as coverage expands in Vietnam. Currently, however, the mix of provider payment systems in use, as well as the payment rates, strongly favours provincial hospitals. CHSs struggle to provide adequate services, and they often are bypassed by patients. No information has been available, however, on the cost of delivering services at CHS or the gap between current payment rates and service costs.

According to the Law on Health Insurance and the supporting regulations (Ministry of Health & Ministry of Finance, 2009), three types of provider payment methods can be applied in Vietnam, namely fee-for-service, a form of capitation and case-based payments. Fee-for-service payment was officially introduced in 1995 as the main payment method for VSS, after the collection of user fees had been legalised at government health facilities. The national fee schedule is developed by the MoH and adapted and approved by provincial governments. The original fee schedule developed in 1995 was recently updated for the first time, and there are widespread concerns that the fees have little relationship to the costs of delivering services.

Vietnam's version of capitation was first piloted in 2004 at some CHS. By 2009, capitation was expanded to district hospitals, and about 40 district hospitals (out of more than 600 district hospitals) were paid for outpatient and in-patient services through a capitation system. There are several features of the current design and implementation of capitation that deviate from international definitions and best practices (Phuong, Oanh, Phuong, Tien, & Cashin, *in press*).¹ For example, the capitated rate paid to district hospitals is calculated separately for each of Vietnam's six insured groups, with the rates based on the historical utilisation and expenditure of the group according to the fee schedule. Case-based payment for in-patient services is still at the pilot stage with only a few hospitals currently piloting this payment method (World Health Organization, 2010). CHSs are mainly paid through a fixed budget that is held by district health centres or district hospitals although they also receive some fee-for-service payment directly from patients.

The current mix of provider payment systems in Vietnam does not give priority to primary health care, and it does not create the right incentives to influence providers to improve quality of care, expand access to priority services, be more responsive to patients and use resources more efficiently (Phuong et al., *in press*). The fee-for-service payment method has led to widespread overprovision of health services and health cost escalation. The capitation payment system as it is designed and implemented in Vietnam has not brought the potential benefits of capitation, such as improving equity or shifting services to primary care (Phuong et al., *in press*). None of the payment systems currently reflects the cost of delivering health care services in Vietnam.

Expanding effective coverage in Vietnam will require better use of available resources and in particular placing higher priority on primary care. In order to address some of the shortcomings of the current provider payment methods, get the provider incentives right, and to ensure sustainability within the government's total resource envelope, the MoH established a steering committee for reforming provider payment methods (Ministry of Health, 2009) and a technical group for provider payment reforms (Ministry of Health, 2011). The MoH also called for more investment in operations research that can supply reliable scientific evidence for provider payment reform in Vietnam. This study is one of a series of three studies commissioned by the MoH to inform the current provider payment policy reform. This study complements the national provider payment assessment (Phuong et al., *in press*) and the simulation study of the potential impacts of different provider payment reform options (Cashin, Phuong, Shain, Oanh, & Thuy, *in press*).

The main objective of the study was to estimate the unit costs of primary care visits at CHSs in selected areas in Vietnam. The evidence from this study is intended to be used to revise the capitation payment system and payment rates in a way that adequately pays for primary care services delivered by CHSs.

Methods

This analysis of the unit costs of outpatient visits is based on data from a costing study conducted in CHSs in four districts in Vietnam in 2013. Two provinces in northern Vietnam were purposely selected for the costing exercise, including Hai Duong province and Thai Nguyen province, located 50 km west and 85 km north of Hanoi capital, respectively. These provinces were selected because they have typical geographical characteristics of northern provinces in Vietnam, and they have been implementing the capitation payment system. In each selected province, two districts were purposely selected for this study to include a total of four districts sampled. All of the CHSs within the four districts were selected for inclusion in the study. Out of 90 total CHSs located in the four selected districts, 14 were excluded from the analysis because they did not have complete and reliable reporting and accounting systems.

Costs were calculated from the perspective of the CHS in order to estimate the full cost of delivering services irrespective of whether costs were covered by central line-item budgets, VSS insurance payments or patient out-of-pocket payments. The financial costs of the services were determined, which represent actual expenditures by the CHS on goods and services purchased to deliver services. This study design was retrospective in nature, including data from calendar year 2011, the most recent year for which complete annual data were available. The study relied entirely on secondary data, leveraging historical utilisation, financial and administrative records. Annual data were used to facilitate health facility reporting of expenditures and utilisation, to account for any seasonal variation in utilisation, which may impact costs.

The data collection was conducted between January 2013 and March 2013, covering the financial period from January 2011 to December 2011. Data collection was carried out by financing and planning staff from the district health offices managing the CHS. Members of the 12-person research team at Hanoi Medical University and Health Strategy and Policy Institute supervised the data collection process. The research team held a training workshop for district health office staff to introduce the objectives of the research and describe the data collection tools and the method for data collection. The trained district health office staff members were responsible for collecting and entering data into the Excel-based costing instrument spreadsheet. The research team visited 2–3

CHSs per district to supervise and verify the data collected by reviewing submitted cost data against the facility activity and financial reports. The research team also interviewed facility staff involved in providing services to collect additional data as needed. The research team processed and validated the data and performed the analysis. Excel-based software was used to perform the data processing, and Excel-based software and Stata were used to conduct the analysis.

Top-down costing using the step-down cost accounting technique was employed for the study to calculate the unit cost of CHS visits. The step-down cost accounting technique is a relatively simple and practical approach to costing health care facilities (Conteh & Walker, 2004). Total facility expenditures were assigned and allocated to in-patient, outpatient and preventive health services. All CHS in-patient and outpatient visits were included although most CHSs have very few in-patient visits, which are mainly for maternity services. Due to the difficulty in separating in-patient and outpatient expenditures from CHS reports, we assumed that the cost of one bed-day was equal to three outpatient visits based on standard assumptions from the costing literature and consultation with CHS staff on their workload and spending (World Health Organization, 1994). Preventive health visits were excluded, as these costs are covered outside of the insurance system through vertical programme funding. Average costs were calculated for outpatient visits – equal to one-third of one bed-day or one outpatient visit.

Given limitations in time and budget as well as the dearth of CHS data on capital assets, capital costs – depreciation of buildings, medical equipment and non-medical equipment – were excluded from the unit cost estimates. The cost of land and the cost of long-term staff training also were excluded, as data were not available. However, the cost of capital, land and long-term staff training were not intended to be paid through the provider payment methods under development, so the exclusion of these costs from our estimates does not affect the usefulness for provider payment policy purposes.

Thus, only recurrent costs were included in the unit cost estimates. Recurrent costs were categorised according to five cost components: (1) staff salaries and allowances, (2) medicines, (3) medical supplies and consumables, (4) operations (water, electricity, etc.) and minor repair/maintenance and (5) training/research. Staff salaries and allowances costs included salaries, allowances, insurance fees, professional hazard/risk payments and incentive bonuses. Operations and minor repair/maintenance costs included electricity, water, fuel, office supplies, telecommunications, transport of materials, minor maintenance and repair of fixed assets, travel, etc. We estimated the cost per outpatient visit with all five recurrent cost components included. We also computed the unit costs with only the three cost components that are covered by the VSS service payments (medicines, medical supplies and consumables, and operations and minor repair/maintenance; Ministry of Health, 2010).

The currency used was Vietnamese Dong, presented here in 2011 prices. For international comparison, we provide the unit costs in US dollars (US\$) at the average exchange rate for the period of January–December 2011: Vietnamese dong (VND) 20,619.6 to 1 US\$ (<http://www.Oanda.com>).

Ethical considerations

The research was approved by the MoH of Vietnam (Decision 4569/QD-BYT on 14 November, 2013).

Table 1. Distribution of the final study sample by geographical area.

	Hai Duong province		Thai Nguyen province		Total
	Kinh Mon district	Tu Ky district	Dong Hy district	Phu Binh district	
<i>Urban CHS</i>					
<i>N</i>	1	1	2	1	5
<i>%</i>	1.3	1.3	2.6	1.3	6.6
<i>Rural CHS</i>					
<i>N</i>	6	22	0	12	40
<i>%</i>	7.9	29.0	0.0	15.8	52.6
<i>Mountainous CHS</i>					
<i>N</i>	12	0	13	6	31
<i>%</i>	15.8	0.0	17.1	7.9	40.8
<i>Overall CHS</i>					
<i>N</i>	19	23	15	19	76
<i>%</i>	25.0	30.3	19.7	25.0	100.0

Results

Table 1 presents the distribution of the final study sample, broken down by geographical area. Of the 76 CHSs included in the cost analysis, there were 40 (52.6%) rural, 31 (40.8%) mountainous and 5 urban (6.6%).

Table 2 presents basic characteristics and activity statistics of the studied CHS. The CHSs were quite similar in their number of staff. CHSs located in urban areas served larger populations than those situated in rural and mountainous settings. The annual per capita utilisation of CHS was higher among the mountainous CHSs (0.963) as compared to that of the rural CHSs (0.890) and the urban CHSs (0.806).

As shown in Figure 1, the cost of one outpatient visit² varied considerably across CHSs, with the average unit cost in the highest group (mountainous) 25% more than the average unit cost in the lowest group (urban). On average, the cost of one outpatient visit including the five cost components provided in mountainous, rural and urban CHSs was VND 49,521 (US\$2.40), VND 41,375 (US\$2.01) and VND 39,794 (US\$1.93),

Table 2. Basic characteristics and activity statistics for the studied CHSs.

	Number of staff	Population served	Coverage of health insurance (%)	In-patient days	Outpatient visits	Per capita utilisation per year ^a
Average urban CHS	4.8	8594	65.0	399	6991	0.806
Average rural CHS	4.4	7224	48.3	398	6164	0.890
Average mountainous CHS	4.0	6149	60.6	126	5636	0.963
Average overall CHS	4.4	6887	54.5	308	6010	0.914

^a‘Utilisation per year’ is equal to total number of CHS utilisation divided by the total number of population in the commune.

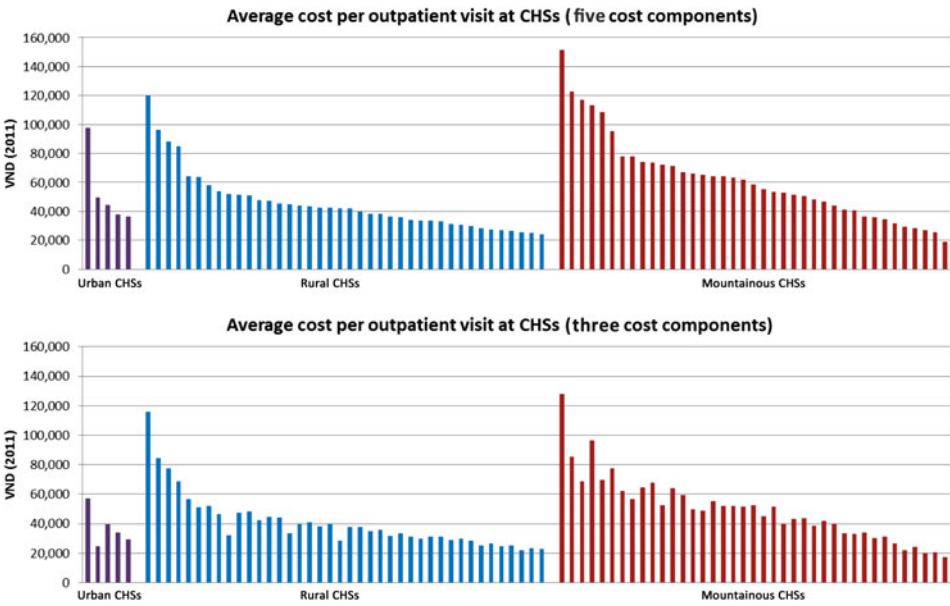


Figure 1. Average cost per outpatient visit provided at 76 studied CHSs.

respectively. Including only three cost components, the variation was less across the three groups. The average cost per outpatient visit provided in mountainous, rural and urban CHSs was VND 20,105 (US\$0.96), VND 19,859 (US\$0.96) and VND 19,596 (US\$0.95), respectively. The average cost per outpatient visit across all CHSs was VND 44,593 (US\$2.16) with five cost components included and VND 20,306 (US\$0.98) with only three cost components included (Table 3).

The cost structures of the outpatient visits are illustrated in Table 4. The findings demonstrate that personnel costs accounted for the highest share of total costs followed by the cost of medicine. There was no cost for training and research at CHS. The share of operating costs (electricity, water, fuel, office supplies, etc.) was minimal.

Table 5 presents a comparison between the estimated visit costs (recurrent costs, excluding medicine costs) and corresponding maximum service fee levels (which excludes medicine costs) CHS charges out-of-pocket patients, according to official user

Table 3. Unit cost per outpatient visit provided at CHSs.

	VND		US\$	
	Five cost components	Three cost components	Five cost components	Three cost components
Urban	39,794	19,596	1.93	0.95
Rural	41,375	19,859	2.01	0.96
Mountainous	49,521	20,105	2.40	0.98
Overall	44,593	20,306	2.16	0.98

Note: US\$1 = VND 20,619.6. The five cost components include: (1) staff salaries and allowances, (2) medicine, (3) medical supplies and consumables, (4) operations and minor repair/maintenance and (5) training and research. The three cost components include: (1) medicine, (2) medical supplies and consumables and (3) operations and minor repair/maintenance.

Table 4. Unit cost structure by geographical location.

	Staff salaries and allowances (%)	Medicine and medical consumables (%)	Operations and minor repair/maintenance (%)	Training and research (%)
Urban	55.2	40.8	4.0	0
Rural	50.6	43.8	5.5	0
Mountainous	59.5	36.7	3.7	0
Overall	54.8	40.6	4.7	0

Table 5. Comparison between unit costs and maximum allowed fees.

Actual recurrent costs, excluding medicine costs (VND)	Maximum fee, excluding medicine costs (VND)	Maximum fee/actual recurrent costs (%)
26,488	5000	18.9

fee policy (Ministry of Health, 2010). The fee levels were found to be much lower than the estimated recurrent costs of providing those services. The average cost recovery was 18.9% for an outpatient visit.

Discussion

Due to limitations of health information and accounting systems in Vietnam, estimating the cost of health services is not a simple task. We provide updated estimates of the cost of services delivered at CHSs in selected areas in Vietnam. This is the first costing exercise ever undertaken for CHS in Vietnam. We found that the average cost of one outpatient visit across all the CHSs was VND 44,593 (US\$2.16) including all recurrent costs, and VND 20,306 (US\$0.98) excluding staff salaries and allowances and training/research, which are not paid by VSS. The unit costs differ substantially across mountainous, rural and urban CHSs and also from the maximum fees that CHS can charge patients for their services. This suggests that CHS services currently are highly underfunded in Vietnam, and there may be concerns about geographic equity in access and quality of CHS services.

The MoH of Vietnam is currently revising the VSS capitation payment system for district hospitals to support its objective of strengthening the grass-roots level of care and to bring the payment system into closer alignment with international definitions and best practices. CHSs form an important part of the district health system, but they clearly have not been prioritised in funding allocation. The MoH therefore is considering extending the capitation system to include payment to CHS. The large gap between the unit cost of services and fees paid by patients must at least partially be covered through VSS or other government sources if the objectives of expanding effective coverage and strengthening the grass-roots level of care are to be met. Closing the gap by increasing patient fees would erode financial protection and likely further reduce access and utilisation of CHS.

The results of this study provide important information to inform the calculation of capitated rates for CHS that reflect the underlying costs of delivering the services (Langenbrunner et al., 2009). Understanding the full cost of delivering priority health

services can ensure that providers are paid adequately to maintain and improve quality. Understanding the relative costs of delivering different services can inform provider payment policies that favour more cost-effective services, such as those provided by CHS, which can free up resources to expand coverage. CHSs play an important role in delivering primary care in Vietnam, particularly given the financial access barriers and overcrowding in provincial hospitals, and adequately paying for CHS services will be important for strengthening this part of Vietnam's health system.

In this study, we found significant variations in the costs of primary health care services between CHSs located in different geographical areas. The unit costs of health services were particularly high in mountainous CHS. This was mainly because of low utilisation of CHS in mountainous areas. Thus, to ensure equity across geographic areas, payment adjustment coefficients may need to be applied in these disadvantaged areas to adequately compensate for these cost variations (Hindle & Khulan, 2006).

This is a preliminary costing study conducted in CHS in northern Vietnam. Unit cost estimates are underestimated, may be considerably, as capital asset costs were excluded from the analysis. Additionally, the analysis is limited due to the conversion of bed-days into outpatient equivalents due to the inability to separate in-patient and outpatient expenditures. However, this study's primary aim was to provide policy-makers with a simple picture of health service costs in a relatively short time frame to inform policy discussions. The results showing the variation in the unit cost of CHS visits across mountainous, rural and urban areas as well as the gap between fees that CHS can charge and the unit costs of services provide valuable information for policy-makers, as they revise the provider payment methods. The results of this study are serving as one input into discussions on developing and adjusting payment rates as capitation is expanded to include CHS. The results also highlight the importance of costing exercises as an evidence-based health policy tool. This is a preliminary study, and additional CHS will be added in the next phase of the costing study for a larger and more representative sample to provide more comprehensive and detailed data about the unit costs of CHS in Vietnam to inform provider payment reform and more realistic rate calculations.

Acknowledgements

We thank the team from the Department of Health Economics and Center for Health System Research, Hanoi Medical University, Hanoi, Vietnam, and the team from Health Strategy and Policy Institute, MoH, Hanoi, Vietnam, for their tireless data collection and analytic effort for this study. We are also grateful to the Joint Learning Network for Universal Health Coverage for both technical and financial support for this study.

Funding

Funding for this study was provided by the Joint Learning Network for Universal Health Coverage and its funder the Rockefeller Foundation [grant number 2011 THS 324].

Notes

1. The payment system is actually modified fee-for-service with a cap. The payment system is referred to as 'capitation' in Vietnam, although the payment system does not meet international definitions for capitation (Phuong et al., *in press*).
2. One outpatient visit is equal to one-third of one bed-day or one outpatient visit.

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