

USED AND FOREGONE HEALTH SERVICES AMONG A COHORT OF 87,134 ADULT OPEN UNIVERSITY STUDENTS RESIDING THROUGHOUT THAILAND

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Abstract. There are limited data on the frequency of foregone health service use in defined populations. Here we describe Thai patterns of health service use, types of health insurance used and reports of foregone health services according to geo-demographic and socioeconomic characteristics. Data on those who considered they had needed but not received health care over the previous year were obtained from a national cohort of 87,134 students from the Sukhothai Thammathirat Open University (STOU). The cohort was enrolled in 2005 and was largely made up of young and middle-age adults living throughout Thailand. Among respondents, 21.0% reported use of health services during the past year. Provincial/governmental hospitals (33.4%) were the most attended health facilities in general, followed by private clinics (24.1%) and private hospitals (20.1%). Health centers and community hospitals were sought after in rural areas. The recently available government operated Universal Coverage Scheme (UCS) was popular among the lower income groups (13.6%), especially in rural areas. When asked, 42.1% reported having foregone health service use in the past year. Professionals and office workers frequently reported 'long waiting time' (17.1%) and 'could not get time off work' (13.7%) as reasons, whereas manual workers frequently noted it was 'difficult to travel' (11.6%). This information points to non-financial opportunity cost barriers common to a wide array of Thai adults who need to use health services. This issue is relevant for health and workplace policymakers and managers concerned about equitable access to health services.

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INTRODUCTION

Health service use is an important determinant of health status. Thailand is an interesting case among developing countries because of its concern about health inequalities, recently introducing a Universal Coverage Scheme (UCS) to finance access to health services. In order to provide evidence on equity in access to healthcare, studies need to continue to monitor differential health outcomes and the differential use of health services as the Thai universal coverage era unfolds. Lessons learned about the impacts of universal health coverage on health inequalities in Thailand will be useful for other developing countries (Knaul and Frenk, 2005; Obermann *et al*, 2006; Tangcharoensathien *et al*, 2007; Yiengprugsawan *et al*, 2007).

There was a health service transition in Thailand before the UCS (Tangcharoensathien and Jongudomsuk, 2004). The Civil Servant Benefit Scheme (CSMBS) was established in 1978 covering government or state enterprise employees and their dependents. The Social Security Scheme (SSS) was founded in 1990 as a tripartite contributory scheme among employers, employees and the government. The 1997 Constitution of Thailand states that access to health services is a basic right of Thai citizens. The UCS began in April 2001 as a pilot program and was implemented nationwide by October 2002, covering over 70% of the population by 2005. The scheme provides outpatient and inpatient services from primary health care facilities following a referral system. The token UCS service fees were dropped altogether in 2006. A study by the National Health Security Office and ABAC-KSC Internet Poll Research Center which conducted surveys on perspectives of the scheme among UCS members showed that more than 80% reported satisfaction with the UCS (Vasavid *et al*, 2004).

There are limited studies focusing on the national population in Thailand which report on the numbers of adults who think they need but do not receive healthcare (Damrongplisit and Melnick, 2009). Consumer preferences of health service enabled by socioeconomic status explained differences in health service use (Suraratdecha *et al*, 2005). However, bypassing lower-level health services could result in catastrophic and impoverishing consequences for poorer households (Limwattananon *et al*, 2007; Somkotra and Lagrada, 2009). Using data from our large national Open University cohort, this paper has two objectives: firstly to describe patterns of health service use and types of health insurance used to pay for health services, and secondly to describe patterns of foregone health service use by demographic, socioeconomic and geographic characteristics.

MATERIALS AND METHODS

Data were obtained from 87,134 students from the Sukhothai Thammathirat Open University (STOU) who completed a baseline survey in 2005. The questionnaire covers a wide range of information including demographic-socioeconomic-geographic information on health status, health risk behaviors, social networks, and family background. A detailed description of the study including baseline characteristics of the STOU cohort participants compared to the population of Thailand was already reported elsewhere (Sleigh *et al*, 2008). STOU has played an important role in Thai development for the last 25 years. Based in Nonthaburi, near Bangkok's airport, it enrolls approximately 200,000 students each year. Of these, 60-70 thousand are new students and the rest have been studying for one semester or more. Overall, 60% of students finish their degrees and

those that do take on average about 7 years.

Student contact details (names and addresses) were provided by STOU administration after the study reported in newsletter, radio and TV announcements to all students. The students were then contacted by mail. There was no coercion and the STOU President and study leaders reassured the participants that their personal responses were confidential and will never be revealed to others at the individual level or have any influence on academic progress at STOU. The students were motivated by being fully informed about the purposes of the Thai health-risk transition study and that they could contribute to knowledge useful to public health in Thailand. A periodic cohort newsletter provides information back to participants on study progress and any interesting results that emerge. A four year follow-up is underway in 2009.

Information on health service use and health insurance coverage were gathered using the following questions: "In the past 12 months, have you used any health services?" "How did you cover the costs of your medical treatment in the past 12 months?" Multiple responses were allowed. Foregone health service use and reasons for it were also asked: "In the past 12 months, have you considered using health services but did not use them?" "If yes, why did you not use health services?" Multiple responses were allowed. Demographic, socioeconomic, and geographic characteristics were examined.

This study aimed to describe patterns of health insurance and health service use and examine their relation to the following demographic characteristics: age (divided into 5 groups: 15-19, 20-29, 30-39, 40-49 and 50 and over); sex; marital status (married and non-married); socioeconomic characteristics including 6 income brackets (less than 3,000, 3,001-7,000, 7,001-10,000, 10,000-20,000, more

than 20,000 THB per month); 5 occupations (professionals, managers, office assistants, manual workers, and others), and place of residence (Bangkok, urban and rural areas).

Informed written consent was obtained from all participants, and ethics approval was obtained from Sukhothai Thammathirat Open University Research and Development Institute (protocol 0522/10) and the Australian National University Human Research Ethics Committee (protocol 2004344).

RESULTS

The survey response rate was 44%; 54% were females and the median age was 29 years. The Planning Division of STOU provided the following information on the first year STOU students in 2005. Students are working Thais and broadly represent the general population: 45% were male, 31% were married at enrolment, and 95% were Buddhist. Age breakdown was as follows: 14% was less than 21 years, 53% was 21-30 years, 15% was 31-35 years, 16% was 36-45 years, and 3.5% was more than 45 years. Monthly incomes of STOU students tend to be rather low: < 3,000 THB (THB 40 = USD 1 in 2005) for 21%, and with a median of THB 6,000. The regional profile of STOU students in 2005 reveals that 32% lived in greater Bangkok, 4% in Central Thailand, 16% in the North of the country, 20% in the Northeast, 9% in the East, 5% in the West, and 13% in the South.

Table 1 presents the main characteristics of the sample. The majority of students included in the analysis were relatively young, with 80% being between 20 and 39 years old. Only 2.5% were aged over 50 years. There were more females in the sample and 54.9% reported they were not married. Socioeconomic characteristics reported here were monthly income and occupation. Roughly 10% of respondents re-

Table 1
Frequency and percentage of demographic, socioeconomic and geographic characteristics among cohort members.

Characteristics of cohort members	Percent	Frequency	
Demographic characteristics			
Age (years)	15-19	2.9	2,502
	20-29	50.7	44,207
	30-39	31.3	27,309
	40-49	12.6	10,948
	≥50	2.5	2,150
Sex	Male	45.3	39,482
	Female	54.7	47,642
Marital Status:	Married	42.2	36,727
	Not-married	54.9	47,843
Socioeconomic characteristics			
Monthly income (THB/month)	≤3,000	10.8	9,372
	3,001-7,000	30.1	26,260
	7,001-10,000	22.7	19,976
	10,001-20,000	23.6	20,564
	>20,001	10.3	8,952
Occupation	Professionals/skilled workers	23.1	14,289
	Senior/middle managers	14.5	3,871
	Office assistants	31.2	32,595
	Manual workers	15.2	15,874
	Others	14.4	15,061
Geographic characteristics			
Regions of residence	Bangkok	17.1	14,862
	Central	24.5	21,160
	North	18.2	15,750
	Northeast	20.9	18,035
	East	6.2	5,326
	South	13.1	11,292
	Urban not Bangkok	36.5	31,775
	Rural	45.9	39,957

ported earned < 3,000 THB/month, half of the sample earned between 3,000 and 10,000 THB/month. About 10% earned > 20,000 THB/month. Close to a quarter of respondents reported working as professionals and skilled workers. The majority (31.2%) were office assistants. Approximately 15% reported their occupation as manual worker.

Overall our cohort members have higher incomes than the general population (NSO, 2006).

Comparing respondents (44%) to the overall STOU students enrolled in 2005, the sex distribution was quite similar. However, approximately 53% of cohort members compared to 67% of overall STOU students were

Table 2
Frequency and percentage of health insurance coverage, use of health services, forgone use and reasons among cohort members.

Use and foregone use of health services	Frequency	Percent
Use of services		
No	18,332	21.0
Yes	68,439	78.5
Health services		
Government clinics	4,164	4.8
Community hospitals	9,359	10.7
Health centers	12,841	14.7
No services used	17,541	20.1
Private hospitals	19,022	21.8
Private clinics	21,034	24.1
Provincial/government hospitals	29,078	33.4
Health insurance		
Private health insurance	3,653	4.2
Universal Coverage Scheme (UCS)	11,847	13.6
Civil servant/state enterprise	21,644	24.8
Non-government employer	23,232	26.7
Self payment	27,516	31.6
Foregone use		
No	36,685	42.1
Yes	47,472	54.5
Reasons (if yes)		
Do not like health provider	2,105	2.4
Could not get away from family	2,646	3.0
Scared of going	4,229	4.9
Too expensive	5,302	6.1
Not satisfied with services	6,629	7.6
Too difficult to travel	10,121	11.6
Could not get time off work	11,926	13.7
Had to wait for too long	14,905	17.1

aged less than 30 years. Approximately 10% of cohort members earned < 3,000 THB/month compared to 20% in overall new enrolled STOU students. Another difference was in geographical distribution between the cohort and overall students especially in Bangkok and Central areas (17.1% in Bangkok and 24.5% in Central) compared to overall newly enrolled STOU students (32% in Bangkok and 4% in Central Thailand).

Table 2 shows that 78.5% of respondents reporting having used health services during the past 12 months. More than one response of health service use was allowed. Roughly one-thirds reported using provincial/government hospitals (33.4%), followed by private clinics (24.1%) and private hospitals (21.8%). Use of health centers and community hospitals combined was roughly 25%. Almost one-thirds of students reported

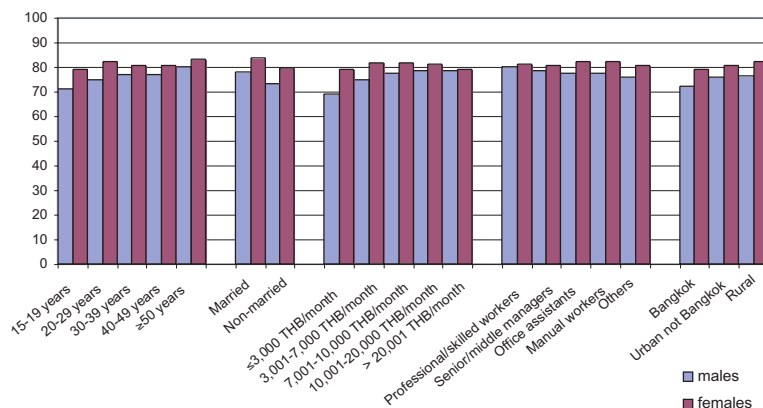


Fig 1-Percentage of health service use by demographic, socioeconomic, geographic characteristics among cohort members.

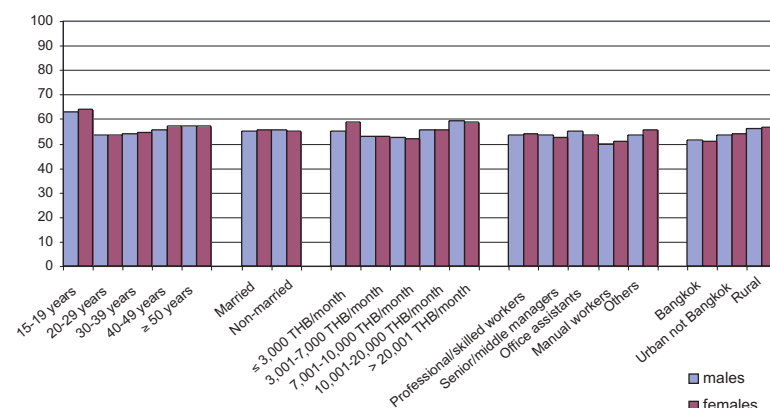


Fig 2-Percentage of foregone health service use by demographic, socioeconomic, geographic characteristics among cohort members.

using self-payment (31.6%), followed by non-government employers insurance schemes (26.7%) and civil servant/state enterprise insurance (24.8%). The UCS was used by 13.6% of the sample, much lower than among the general population. Foregone use was reported by 42.1% of respondents. Reasons reported included: “had to wait for too long” (17.1%); “could not get time off work” (13.7%); “too expensive” (6.1%); and “too difficult to travel” (11.6%).

Fig 1 shows that the proportion of those who had used a health service during the

past year ranged from 70% to 82% across various socio-economic and demographic groups with females more likely to report using health services across all groups. Overall the similarity in health service use was striking for the various age, income, marital status, occupation and geographic locations compared. However, those in the age range 15-19 years, who are single, have an income lower than 3,000 THB/month and reside in Bangkok were the least likely to report any health service use compared to other groups. Fig 2 shows that roughly 50-65% reported foregone health service use during the past 12 months and the patterns across compared socio-demographic groups showed substantial similarities. However, those in the youngest group, lowest income group and residing in rural areas reported more foregone health service use

than other groups. The next section explores further such use of health services by demographic, socioeconomic and geographic characteristics.

Table 3 shows that across different age groups, use of provincial/governmental hospitals was the most popular especially in the older age groups (37.8% of those aged 40-49 and 41.3% of those aged over 50). The youngest age group reported using provincial hospitals (31.0%), private clinics (27.3%) and health centers (24.4%). The use of provincial hospitals and private clinics was strongly

Table 3
Percentage of health service types by demographic, socioeconomic and geographic characteristics among cohort members.

Characteristics	Government clinics	Community hospitals	Health centers	Private hospitals	Private clinics	Provincial/ Government hospitals
Age (years)						
15-19	4.3	13.9	24.4	14.5	27.3	31.0
20-29	4.6	11.0	16.4	23.2	27.9	32.1
30-39	4.9	10.3	13.2	21.9	20.7	33.2
40-49	5.0	10.1	10.6	18.3	17.9	37.8
≥50	6.1	9.3	9.7	18.2	18.2	41.3
Sex						
Male	4.8	10.7	14.6	18.1	19.3	35.0
Female	4.8	10.8	14.9	24.9	28.2	32.1
Status						
Married	4.8	11.5	14.4	21.5	22.8	36.1
Non-married	4.7	10.3	14.9	22.2	25.3	31.4
Monthly income (THB/month)						
≤3,000	5.6	15.0	26.2	10.5	25.6	31.3
3,001-7,000	4.9	12.1	20.6	20.2	28.5	31.5
7,001-10,000	4.9	9.5	11.5	24.2	23.8	35.4
10,001-20,000	4.7	10.2	9.2	22.5	20.6	37.2
>20,000	3.4	8.4	8.6	34.0	19.4	29.1
Occupation						
Professionals and skilled workers	5.3	11.8	14.3	23.8	23.4	34.6
Senior and middle managers	4.9	8.8	12.8	27.9	23.9	32.1
Office assistants	5.2	36.2	13.7	22.1	23.9	36.3
Manual workers	4.7	19.5	17.9	26.1	26.0	30.0
Others	4.2	18.2	16.5	19.6	24.9	33.2
Areas						
Bangkok	5.1	1.8	4.4	37.8	20.8	26.7
Urban not Bangkok	5.2	6.4	7.7	24.4	24.4	36.8
Rural	4.3	17.5	24.1	13.9	25.2	33.1

associated with income and occupation. The lowest income group used health centers (26.2%) more relative to other income groups. On the opposite end, the highest income group had the highest use of private hospitals (34.0% of this income group). Office assistants reported using provincial hospitals (36.3%) and community hospitals (36.2%) almost equally. Geographically, in

Bangkok, the use of private hospitals was the most popular (37.8%) and provincial/governmental hospitals (36.8%) in other urban areas. In rural areas, the use of provincial hospitals (33.1%) stood out but the use of health centers (24.1%) and community hospitals (17.5%) were higher relative to other areas.

Table 4 shows that across age groups,

Table 4
Percentage of health insurance usage by demographic, socioeconomic and geographic characteristics among cohort members.

Characteristics	Private health insurance	UCS	Civil servant/ State enterprise	Non-government employer	Self payment
Age (years)					
15-19	3.6	36.0	8.8	10.9	38.3
20-29	3.7	17.6	15.4	32.9	33.7
30-39	4.9	8.2	32.9	24.4	28.6
40-49	4.8	6.9	42.5	14.3	28.4
≥50	3.8	8.0	44.5	8.7	33.7
Sex					
Male	4.3	13.2	30.4	20.6	26.8
Female	4.2	14.0	20.3	31.7	35.5
Status					
Married	4.3	8.0	36.3	24.4	29.3
Non-married	4.2	17.6	16.5	28.3	33.3
Monthly income (THB/month)					
≤3,000	3.3	41.4	5.4	6.1	37.0
3,001-7,000	2.6	20.2	9.8	37.6	34.3
7,001-10,000	3.4	6.0	31.2	33.1	28.7
10,001-20,000	4.9	2.7	44.1	21.8	27.6
>20,000	10.3	2.9	35.1	18.6	33.4
Occupation					
Professionals and skilled workers	4.4	11.5	28.2	29.5	31.5
Senior and middle managers	6.4	10.1	25.4	30.6	32.6
Office assistants	3.4	7.8	32.9	31.4	28.3
Manual workers	4.2	16.9	13.4	40.2	32.2
Others	4.1	16.4	23.5	21.6	34.8
Areas					
Bangkok	7.0	6.4	17.7	32.7	35.6
Urban not Bangkok	4.6	9.2	27.4	27.7	31.0
Rural	2.8	19.7	25.4	23.6	30.6

the youngest age group had a majority reporting using self-payment possibly financed by parents (38.3%), the UCS (36.0%), or civil servant/state enterprise insurance schemes (8.8%) which also include dependents. In the lowest income group, 41.4% used the UCS, followed by self-payment (37.0%). In the middle income groups, 37.6% of those who earned 3,001-7,000 THB/month

and 33.1% of those who earned 7,001-10,000 THB/month used non-governmental employer schemes. For those in higher income groups 44.1% of those earning 10,001-20,000 and 35.1% of those earning more than 20,000 THB/month used the civil servant/state enterprise scheme. Across all the geographic areas, self-payment was the most prominent payment method, followed by non-govern-

Table 5
Percentage of reasons^a for not using health services by demographic, socioeconomic and geographic characteristics among cohort members.

Characteristics	Too expensive	Not satisfied with services	Difficult to travel	Could not get time off work	Long waiting time
Age (years)					
15-19	6.1	4.8	9.8	9.6	11.8
20-29	6.8	8.0	12.9	15.5	17.1
30-39	5.4	7.9	10.6	12.6	17.8
40-49	5.1	6.2	9.5	11.2	16.9
≥50	4.9	5.5	10.0	7.5	16.5
Sex					
Male	5.7	7.9	11.8	12.3	16.8
Female	6.4	7.4	11.5	14.9	17.3
Status					
Married	5.2	7.5	10.0	12.9	17.6
Non-married	6.7	7.7	12.8	14.3	16.6
Monthly income (THB/month)					
≤3,000	7.8	8.4	12.5	5.1	17.2
3,001-7,000	7.2	8.1	12.1	15.4	17.8
7,001-10,000	5.9	8.0	12.6	16.5	18.1
10,001-20,000	5.0	7.0	10.8	14.4	16.8
>20,000	4.3	5.5	9.5	12.6	14.0
Occupation					
Professionals and skilled workers	6.8	8.4	12.3	17.1	18.8
Senior and middle managers	6.5	8.7	12.3	15.2	18.4
Office assistants	6.0	7.5	11.9	16.6	17.9
Manual workers	7.8	9.1	13.4	16.7	18.4
Others	6.3	7.4	11.1	11.8	16.6
Areas					
Bangkok	8.9	7.4	13.6	15.6	16.6
Urban not Bangkok	6.3	7.8	10.9	14.1	18.1
Rural	4.9	7.6	11.5	12.7	16.5

^a includes the five most common reasons reported.

ment employer beneficiaries; 32.7% in Bangkok and 27.7% in urban areas. For cohort members residing in rural areas the UCS constituted almost 20% of health service payments.

Cross analysis between types of health services used and the type of health insurance (data not shown here) points out those covered by non-government employer in-

surance schemes reported using private hospitals (48.8%) much more than other types of health services; compared to civil servant/state enterprise employees who reported the most use of provincial/government hospitals (64.7%). Those eligible for private health insurance unsurprisingly were patrons of private hospitals (66.2%). For those eligible for the UCS, health facilities used were those in

the public sector such as provincial/government hospitals (46.4%) and health centers (44.6%). Those with self-payment sought most services from private clinics (53.3%).

Table 5 reveals the principle reasons for not using health services. Across age groups, those in the prime working age (20-39 years) as well as females reported their reason for not using health services as "long waiting time" and "could not get time off work". However, "could not get time off work" was reported at a particularly low rate by those in the lowest income group (2-3 times less than other income group). Across income groups, the proportion of those reporting reasons being "too expensive" and "difficult to travel" were high among lowest income group but generally declined as income increased.

"Long waiting time" (eg, 18.8% in professionals and skilled workers) and "could not get time-off work" (eg, 17.1% in professionals and skilled workers) were the two primary reasons across all occupation groups. For manual workers, however, reporting reasons of "too expensive" and "difficult to travel" were much higher than for other occupational groups. Bangkok and other urban residents often report not using health services due to "long waiting time" and "could not get time off work".

DISCUSSION

The STOU cohort data have the advantage of being large, national and representative of a dynamic, young and middle-age section of Thai society. This group exhibits a wide range of health status, health risk behaviors and health service use so allowing us to explore the association of different outcomes over time. The STOU cohort was socioeconomically a little better-off than the general Thai population, which is also shown in the pattern of health insurance and types of

health service use. The cohort is also more highly educated than the general population (Open University students) giving them access to more health-related information. On the use of health services, provincial/governmental hospitals were the most attended health facilities in general, followed by private clinics and private hospitals especially in the higher income groups. Health centers and community hospitals, which were associated with the UCS policy, were sought after in rural areas. Self-payment was the most reported health insurance-related payment. Provincial/government hospitals were particularly utilised by those having civil servant/state enterprise insurance and private hospitals by those covered by non-governmental employer schemes.

Our findings add to the limited literature on foregone use of health services. Long waiting time, inability to get time off work, and difficulty of travel were major reasons for reporting foregone health service use. This information pointed to continuing barriers in use of health services in Thailand. This study highlighted time pressure and opportunity cost as main reasons for foregone health service use. Other studies have also shown that time pressure, with longer work hours and faster work pace, creates disincentives for uptake of health services (Parslow *et al*, 2004; D'Souza *et al*, 2005; Strazdins and Loughrey, 2007). School-age populations also forego care and barriers for them can include lack of information, lack of access, and poor insurance coverage (Elliott and Larson, 2004). Those older aged, minorities, single parents, and disabled persons also forego care due to socio-physical barriers (Ford *et al*, 1999). A study in China also found that increased travel distance and time could lead to decreased visits to specialists and an increasing reliance on generalists (Chan *et al*, 2006). Individual and household characteristics thus could explain

the pattern of foregone health service use.

There are some cautious notes regarding representation of cohort members and interpretation of results. Cohort members are a subset of STOU students with some differences in geo-demographic distribution. The cohort members also might not represent the Thai population but do shed some light on middle aged adults and their challenges regarding foregone health service use. Despite most cohort members having health insurance, self-payment constitute one-third in method of payment. As there is no information on seriousness of illness, we speculate these to be minor illnesses that some foregone illness episode may have been of a minor nature.

Both use and foregone use of health services reflect the multidimensional nature of socioeconomic status (occupation, income, and education). This study has shown that health service use was associated with types of health insurance which related to occupation types. However, barriers to use of health services included ability to pay as well as opportunity costs such as travel time as reported by manual workers. In addition for professionals and other office workers, long waiting time and inability to get time off work prevented them from using health services. As Thailand's UCS progresses in its coverage, research could usefully extend the focus on other non-financial barriers such as cost of travelling and long waiting time which might prevent the use of health services when needed. Use of services not covered by the UCS benefit package, and by-passing of designated providers, are known to be major causes of catastrophic expenditures and impoverishment (Limwattananon *et al*, 2007). For policymakers, this paper has highlighted the need to pay attention to non-financial barriers to ensure equitable access to healthcare for the diverse Thai working population.

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