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## Equity of access to mammography service among beneficiaries of different health insurance schemes in Thailand

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**Putthasri W, Tangcharoensathien V, Mugem S, Jindawatana W. Equity of access to mammography service among beneficiaries of different health insurance schemes in Thailand. Chula Med J 2004 Jul; 48(7): 455 - 63**

**Objective** : *To describe the characteristics of mammography users and equal access to mammography services by beneficiaries of different insurance schemes.*

**Setting** : *Mammography units of nine public hospitals, namely the National Cancer Institute (NCI), Rachvithi Hospital, Ramathibodi Hospital, Maharaj Chiangmai Hospital, Lampang Hospital, Srinagarind Hospital, Khonkaen Hospital, Songkhlanagarind Hospital and Hatyai Hospital.*

**Subjects** : *1,067 users who completed self administered questionnaire.*

**Methods** : *Users were randomly selected from study sites. The number of subjects at The National Cancer Institute NCI, Rajavithi Hospital, Ramathibodi Hospital, Maharaj Chiangmai Hospital, Lampang Hospital, Srinagarind Hospital, Khonkaen Hospital, Songkhlanagarind Hospital, and Hatyai Hospital were 122, 125, 124, 119, 127, 124, 60, 136 and 130, respectively. They were requested to respond to a self-administered questionnaire which was developed by the researcher and tested at Songkhlanakarind Hospital. Parameters used in the questionnaire included users' characteristics, insurance coverage, care seeking behavior and the modes of their payment of mammography service. Data were collected from July 2002 to April 2003.*

**Result** : *The data showed that the beneficiary covered by the Civil Servant Medical Benefit Scheme (CSMBS) was the most common, joined by 60 percent of the recruited users of mammography. The average total expense paid by users, including transportation and mammography, was 1,144 baht. Mammography fee accounted for 81 percent of the expense. Users covered by different insurance schemes paid mammography services differently. The uninsured group took the highest burden at 1,003 baht of mammography service fee, CSMBS paid 1,001 baht, the Social Security Scheme (SSS) paid 798 baht and the universal healthcare coverage (UC) paid, the least, 365 baht.*

**Conclusion** : *The result showed that users' expense, both mammography fee and transportation, was an obstacle to people who needed the service. There was unequal access to mammography among different insurance schemes.*

**Keywords** : *Mammography, Equity of access, Breast cancer, Screening.*

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วีระศักดิ์ พุทธาศรี, วิโรจน์ ตั้งเจริญเสถียร, สุวรรณ ภูมิ, วงเดือน จินดาวัฒนะ. ความเท่าเทียมกันของการเข้าถึงบริการแมมโมแกรมตามประเภทของระบบประกันสุขภาพผู้ให้บริการในประเทศไทย. จุฬาลงกรณ์เวชสาร 2547 ก.ค; 48(7): 555 - 63

- วัตถุประสงค์** : เพื่ออธิบายลักษณะของผู้รับบริการแมมโมแกรมของไทย และความเท่าเทียมในการเข้าถึงบริการตามกลุ่มคุ้มครองสุขภาพที่ต่างกัน
- สถานที่ทำการศึกษา** : หน่วยแมมโมแกรมในโรงพยาบาลรัฐจำนวน 9 แห่ง ประกอบด้วย สถาบันมะเร็งแห่งชาติ, ร.พ.ราชวิถี, ร.พ.รามธิบดี, ร.พ.มหาราชเชียงใหม่, ร.พ.ลำปาง, ร.พ.ศรีนครินทร์, ร.พ.ขอนแก่น, ร.พ.สงขลานครินทร์, และ ร.พ.หาดใหญ่
- ตัวอย่างที่ศึกษา** : ผู้รับบริการแมมโมแกรม จำนวน 1,067 คน
- รูปแบบการวิจัย** : เก็บข้อมูลโดยใช้แบบสอบถามจากการสุ่มผู้รับบริการแมมโมแกรมและสมัครใจให้ข้อมูล ในระหว่างเดือนกรกฎาคม 2545 ถึงเดือนเมษายน พ.ศ. 2546 จำนวนชุดแบบสอบถามได้จากตัวอย่างที่ สถาบันมะเร็งแห่งชาติ, ร.พ.ราชวิถี, ร.พ.รามธิบดี, ร.พ.มหาราชเชียงใหม่, ร.พ.ลำปาง, ร.พ.ศรีนครินทร์, ร.พ.ขอนแก่น, ร.พ.สงขลานครินทร์, และ ร.พ.หาดใหญ่ เป็นจำนวน 122, 125, 124, 119, 127, 124, 60, 136 และ 130 ชุด ตามลำดับ แบบสอบถามที่ใช้สร้างขึ้นโดยผู้วิจัย และทำการทดสอบที่ ร.พ.สงขลานครินทร์ ก่อนนำมาใช้จริง ข้อมูลประกอบด้วย ข้อมูลบุคคลประเภทการคุ้มครองสุขภาพ พฤติกรรมการหาบริการสุขภาพ และค่าใช้จ่ายในการมารับบริการ
- ผลการศึกษา** : กลุ่มตัวอย่างเป็นผู้มีสวัสดิการรักษายาบาลข้าราชการ/รัฐวิสาหกิจ มากที่สุด (ร้อยละ 60) ค่าใช้จ่ายรวมที่ใช้ในการเดินทางและค่าบริการตรวจแมมโมแกรมเป็น 1,144 บาท โดยเป็นสัดส่วนจากค่าบริการตรวจร้อยละ 81 หากพิจารณาตามกลุ่มการคุ้มครองสุขภาพ กลุ่มที่ไม่มีประกันสุขภาพใด ๆ จ่ายตรวจแมมโมแกรมมากที่สุดจำนวน 1,003 บาท กลุ่มข้าราชการ/รัฐวิสาหกิจ จ่าย 1,001 บาท กลุ่มผู้ประกันตนจ่าย 798 บาท ขณะที่กลุ่มหลักประกันสุขภาพถ้วนหน้า (30 บาท) จ่ายค่าตรวจน้อยที่สุดเป็น 365 บาท
- วิจารณ์และสรุป** : ผลการศึกษาพบว่ายังมีความไม่เท่าเทียมกันในค่าใช้จ่าย และการเข้าถึงบริการแมมโมแกรม ระหว่างกลุ่มที่มีการคุ้มครองสุขภาพที่ต่างกัน
- คำสำคัญ** : แมมโมแกรม, ความเท่าเทียมการเข้าถึงบริการ, มะเร็งเต้านม

Cancer has been ranked the second and the third causes of mortality in Thailand since 1977, led by heart diseases and accidents.<sup>(1)</sup> The National Cancer Institute (NCI) which is responsible for cancer prevention and control estimated some 64,000 new cases of cancer in 1993. Breast cancer was the second most common cancer among Thai women, followed cervical cancer. The estimated incidence rate of breast cancer was 16.3 per 100,000 women. So far, hospitals in Bangkok have the highest incidence rates, followed by Chiangmai Hospital, Lampang Hospital, Songkhla Hospital, and Khonkaen Hospital.<sup>(1)</sup> Breast cancer is extremely rare in Thai men. Age-specific incidence rates showed an increasing rate with age and peaked among women of 50 years old. A plateau was observed for those who are older than 50 years old with a small decline of incidence rate among women of older age. The change of population age-component and lifestyle lead to an increasing incidence of breast cancer.

Although breast cancer was ranked second among Thai women, it was a good mean for the assessment of healthcare systems (including service delivery and financing healthcare) in their dealing with early cancer detection and management. Although the technique of self-examination of the breast has been widely promoted among women, anecdotal observations found that Thailand has a poor performance in primary and secondary preventions of breast cancer. This is reflected by a high prevalence of late-stage disease at first diagnosis in cancer registry. It indicates that 56% of breast cancer patients received treatment at clinical stages III and IV.<sup>(2)</sup> Regular screening is an important preventive measure in reducing morbidity and mortality of breast

cancer. A study at Songkhla Hospital found that only 37 percent of breast cancer patients practiced breast self-examination and 51 percent heard about breast cancer.<sup>(2)</sup>

An effective nationwide screening program would result in an improvement of five to ten year survival of breast cancer.<sup>(3)</sup> The improved survival time did not only depend on the improvement of the modality of treatments, but also on the stage of the disease at first treatment, the earlier the better. Mammogram can detect a small change in the breast tissue, which might indicate cancer. These lesions may be too small to be felt either by the woman herself or by the doctor during the clinical examination. An appropriate breast cancer screening program aiming at early detection would result in an improvement of treatment outcome.<sup>(3)</sup>

**Equity concerns fairness and justice.** A good healthcare system should ensure that resources are allocated according to the needs and not to the capacity to pay. Also, it should ensure equal access to similar needs and equal distribution of health among different groups of population, for example, between the rich and the poor, the urban and the rural population.

Equal access is often viewed as a "standard" of health care. Access is defined as "freedom or ability to obtain or make use of". Equal access, then, implies that everyone in the society is equally able to obtain or make use of health care services.<sup>(4)</sup> Following the definition, equal access would mean that persons facing the same costs when consuming health care would also have equal access. Access cost was a combination of several factors, such as distance to facilities, out-of-pocket payment for services, etc.<sup>(5,6)</sup>

The benefit package covered by CSMBS does not allow any reimbursement of annual screening but, it is possible on diagnostic mammography for both in-patient and out-patient services at public hospitals. Similarly, the UC and SSS benefit is also available for diagnostic procedure at the hospitals where they were registered.

The objectives of the study are: 1) describe the characteristics of the users of mammography in public hospitals and; 2) analyze equality of access by users covered by different insurance schemes and the magnitude of payments for services by them. This study would inform the national policy makers on the direction of resources allocation for cancer screening in Thailand.

### Methodology

Mammography users at the nine selected hospitals, namely the National Cancer Institute (NCI), Rajavithi Hospital, Ramathibodi Hospital, Maharaj Chiangmai Hospital, Lampang Hospital, Srinagarind Hospital, Khonkaen Hospital, Songkhlanagarind Hospital, and Hatyai Hospital were asked for their willingness to participate in the study. A self-administered questionnaire was applied. The questionnaire was developed by the researchers and tested at Songkhlanakarind Hospital. The content of the questionnaire consisted of users' characteristics, expense for mammography service and transport.

The analysis was based on 1,067 subjects, randomly selected from July 2002- April 2003. The numbers of subjects from NCI, Rachvithi Hospital, Ramathibodi Hospital, Maharaj Hospital, Lampang Hospital, Srinagarind Hospital, Khonkaen Hospital, Songkhlanagarind Hospital, and Hatyai Hospital were

122, 125, 124, 119, 127, 124, 60, 136 and 130, respectively. The data analysis included frequency and frequency ranks categorized by the four public health insurance schemes: users without any health insurance (the uninsured), the thirty-baht scheme or universal healthcare coverage (UC), social security scheme (SSS), and civil servant/state enterprise medical benefit scheme (CSMBS). Finally, equality of access to mammography services was measured by the cost of services and traveling expense categorized by the four insurance schemes.

### Results

Based on 1,067 users who completed the structured questionnaire, 60 percent, 17 percent, and 5 percent of the subjects were covered by CSMBS, UC and SSS, respectively, There were 18 percent who were uninsured. The average age of the subjects was 47.8 years old, 70 percent were married. Most of them had bachelor and higher educational degree graduates (43 percent); 31 percent had primary education or lower; 14 percent had certificate or diploma level; and 12 percent secondary school.

There were many factors in mammography utilization and care seeking decision such as clinical symptoms, hospital preferences, distance and transport cost to hospital and other potential obstacle to service. The reasons that led them to use mammography varied among types of insurance coverage.

Having a breast symptom was the most common cause among the uninsured, and those who were covered by UC and SSS that led them to mammography service (Table 1). Breast check up was the most common reason among the beneficiaries

covered by CSMBS. In addition, being referred from other healthcare providers was the second most common reason among UC members. This reflects the nature of referral system of this scheme.

There were many important reasons on the choice of hospital for mammography services. Having modern medical devices (66 percent) and having a good reputation (53 percent) were the two most common reasons for choosing mammography services assessed by the users. Ability to reimburse

the medical bills from the scheme was an obvious reason among the CSMBS beneficiaries.

Access to care was measured by distance and travel time to reach services. The average distance from place of residence and traveling time to the hospital was 74.9 kilometers, and that required 1 hour and 29 minutes to reach the destinies. The uninsured traveled the farthest with highest travel time (102.7kilometers and 1 hour and 44 minutes).

**Table 1.** Percentage and frequency rank of reasons to seek mammography by type of insurance coverage.

Reasons to seek service	The uninsured	UC	SSS	CSMBS	Total
Check up	35 % (2)	20 % (3)	31 % (2)	55 % (1)	45 % (1)
Breast symptom	52 % (1)	45 % (1)	52 % (1)	39 % (2)	43 % (2)
Be referred	3 % (5)	25 % (2)	6 % (4)	1 % (5)	6 % (3)
Other symptom	4 % (4)	5 % (4)	8 % (3)	3 % (3)	4 % (4)
Other reasons	6 % (3)	5 % (5)	4 % (5)	2 % (4)	3 % (5)
Number of sample	192	182	53	640	1,067

Note: figure in bracket is frequency rank

**Table 2.** Reasons for hospital choice by type of insurance coverage.

Reason for hospital choice	The uninsured	UC	SSS	CSMBS	Total
Having modern equipment	61 %	54 %	63 %	70 %	66 %
Having good reputation	52 %	55 %	46 %	54 %	53 %
Reimbursement reason	7 %	2 %	12 %	70 %	47 %
Easy to access	39 %	47 %	58 %	46 %	46 %
Good manner of staff and good services	37 %	36 %	40 %	44 %	41 %
Being referred from other providers	2 %	32 %	6 %	2 %	7 %
Inexpensive	2 %	27 %	21 %	2 %	7 %

Note: more than one answer allowed

**Table 3.** Average distance and travel time to hospitals by types of insurance coverage.

Insurance scheme	Distance (km.)	Travel time (hour: minute)
● the uninsured	102.7	1:44
● UC	63.5	1:25
● SSS	43.9	1:16
● CSMBS	73.8	1:26
<b>Total</b>	74.9	1:29

All respondents were asked whether they came across any obstacle in access to mammography services. If it was positive, they were requested to identify the problem. A subject could provide more than one problems. 48 percent of the respondents said they had at least one problem to access the service. Among the group who reported the problem, time spent in hospital (46 percent), mammography fee (43 percent), travel expense (30 percent), and income loss (10 percent) were the most common obstacles to access mammogram adequately. Among the uninsured, the mammography fee was the first problem. The UC and SSS members reported that difficulty of traveling was the most important.

Users covered by different insurance schemes had wide variation in traveling cost and payment for mammography fee. The subjects were asked to tell how much they paid for traveling from home to hospital and for mammography services. The total expense for the access to care was estimated at 1,144 baht. The mammography fee was 81 percent of the total expense, 19 percent was traveling cost. The uninsured had the highest expenditure of 1,303 baht, whereas the beneficiaries of UC paid 581 baht. While the UC members had the least cost but the proportion of travel cost is the highest (37 percent). For the payment of mammography fee (excluding transportation), the uninsured group bore the highest burden at 1,003 baht, CSMBS paid 1,001 baht, the

**Table 4.** Potential obstacles to access mammography by health insurance coverage.

Potential obstacles	Rank (percentage)				
	The uninsured	UC	SSS	CSMBS	Total
Time spent in hospital	2 (34 %)	4 (24 %)	3 (23 %)	1 (57 %)	1 (46 %)
Mammogram fee	1 (71 %)	2 (29 %)	4 (8 %)	2 (38 %)	2 (43 %)
Travel expense	3 (20 %)	1 (49 %)	1 (54 %)	3 (28 %)	3 (30 %)
Income loss	4 (11 %)	3 (26 %)	2 (31 %)	4 (5 %)	4 (10 %)

Note: more than one answer allowed



**Table 5.** Expenditure paid by users of different health insurance coverage.

Health insurance	Mammography		Total expense
	Travel	Fee	
• The uninsured	300 (23 %)	1,003 (77 %)	1,303
• UC	216 (37 %)	365 (63 %)	581
• SSS	120 (13 %)	798 (87 %)	918
• CSMBS	215 (18 %)	1,001 (82 %)	1,216
<b>Total</b>	220 (19 %)	924 (81 %)	1,144

Social Health Insurance paid 798 baht and the UC paid the least amount of 365 baht. However, the CSMBS beneficiaries can reimburse their bills if that mammography was for diagnostic purposes. The scheme does not allow reimbursement of annual screening.

### Discussion and conclusion

The result showed that beneficiaries under CSMBS had a better access to mammography than others. Major reasons of seeking services differed among beneficiaries covered by different insurance scheme. Having a clinical symptom is the most common among the uninsured whereas this is the least among the CSMBS beneficiaries. Most CSMBS used mammography as a check up than other groups. However, distance and time on traveling was not significantly different among four insurance schemes that all groups could go to hospitals within two hours. Beneficiaries under SSS had the least traveling time.

The result also displayed that expenses shouldered by the mammography users could

possibly be a barrier to the services. Travel cost and service fee might probably a critical determinant of whether the care was sought. It can be said that inequality in health utilization partly came from benefit covered by insurance scheme e.g. CSMBS which was considered one of the most generous health benefit and insurance scheme in the country.<sup>(7)</sup> However, the utilization rate should compare with their cancer incidence by schemes. Unfortunately, the data are not yet available.

Furthermore, there were also other factors affecting the accessibility to mammography. Particularly, mammography facilities, the number of the machines increased rapidly and especially significantly during 1995-1997. As a result of the economic crisis of 1997 the growth in the expansion of mammography slowed down. The growth rate in the public sector mammography was higher than the private sector.<sup>(8)</sup> The waiting time, another indicator of fairness, was however not included in this study. Patients may have to wait longer in line, if the demand of the service increased especially in public sectors.

In addition, the common barriers of cancer screening include fear of cancer, fatalistic views of cancer, and patient's embarrassment of breast exposure to clinicians. Positive cues to undergo screening include physician recommendation, community outreach programs with the use of lay health workers and use of culturally specific media.<sup>(3)</sup>

The validity of this study was based on self-administrative questionnaire. Its principle was to reduce the effects of interviewers' interaction so that informants would feel free to express their opinions. However, it might not be suitable for subjects who had low level of education, and obviously among illiterate respondents.<sup>(9)</sup> In this study, some incomplete sets of questionnaire or some part of the questionnaire were excluded.

In short, in order to improve equity in access to breast cancer screening, breast-self exam and clinical breast exam program might generally be recommended to increase the awareness of mammography. An effective mammography policy must be taken into account barriers such as users' expense on traveling and mammography fees.

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