

# Do Health Care Providers Have a Lower Prevalence of Abnormal Pap Smears than the General Public?

Komsun Suwannarurk MD\*,  
Konkarn Bhamarapratana PhD\*\*, Pakpoom Kheolamai PhD\*\*,  
Yuttadej Thaweekul MD\*, Karicha Mairaing MD\*,  
Yenrudee Poomtavorn MD\*, Junya Pattaraarchachai PhD\*\*\*

\* Gynecologic Oncology Unit, Department of Obstetrics and Gynecology, Faculty of Medicine, Thammasat University, Pathumthani, Thailand

\*\* Department of Preclinical Science, Faculty of Medicine, Thammasat University, Pathumthani, Thailand.

\*\*\* Department of Community Medicine, Faculty of Medicine, Thammasat University, Pathumthani, Thailand

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**Background:** Most Thai people believe that health care providers have a lower risk of any disease than their patients. This belief may lull Thai health care providers into accepting the false belief that they are at a lower risk of having the precancerous conditions that lead to cervical cancer.

**Objective:** This study compares the prevalence of abnormal Pap smears from health care providers (HC) and non health care providers (NHC) by using the standard liquid-based Pap smear processing at Thammasat University Hospital's pathology department, Thailand.

**Material and Method:** Both health care providers (HC) and non health care providers (NHC) were patients at the outpatient clinic, Thammasat University Hospital. They were screened for cervical cancer by using liquid-based Pap smear (LBP). Cytological diagnoses and specimen adequacy were classified using the Bethesda system 2001. All subjects who had abnormal cytology more than atypical squamous cells or atypical glandular cells were counseled to have performed a colposcopic directed biopsy for confirmation of pathology.

**Study Design:** A total of 250 liquid-base Pap smears were processed and evaluated at the Gynecology clinic, Thammasat University Hospital from April 2008 to May 2008.

**Results:** The groups of HC and NHC consisted of 122 and 128 women, respectively. In general, both the HC and NHC groups were similar in their age, religion, income and education level distributions. The range of ages was between 16 and 75 years, with the mean age equal to  $40.2 \pm 10.5$  years. Prevalence of abnormal Pap smears was 9.8% in HC and 9.4% in NHC ( $p$ -value = 0.90). HC showed atypical change (ASC, AGC), low-grade squamous intraepithelial lesions (LSIL) and high-grade squamous intraepithelial lesions (HSIL) at 0.8%, 1.6% and 7.4%, respectively. NHC had an incidence of atypical change, LSIL and HSIL at 0.8%, 0.8% and 7.8%. HC had an equal incidence of abnormal Pap smears prevalence to NHC. Further, the percentage of HC and NHC groups with histological confirmed cervical intraepithelial neoplasia (CIN) I were not significantly different (4.92% vs. 6.25%,  $p$ -value = 0.70), likewise CIN 2/3 (1.64% vs. 1.56%,  $p$ -value = 1.00). According to our study the rate of abnormal Pap smears observed in both health care providers and clients was essentially the same.

**Conclusions:** The prevalence of abnormal Pap smears in health care providers was statistically equivalent to that in their clients.

**Keywords:** Abnormal Pap smears, Prevalence, Health care providers, Liquid-based.

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Cervical cancer is the most common gynecological cancer in Thailand. There is 6,243 cases

**Correspondence to:**

Suwannarurk K, Gynecologic Oncology Unit, Department of Obstetrics and Gynecology, Faculty of Medicine, Thammasat University, Pathumthani 12120, Thailand.

Phone: 0-2926-9343

E-mail: [k\\_suwannarurk@yahoo.com](mailto:k_suwannarurk@yahoo.com)

was newly diagnosed per year. Estimatedly 2,620 Thai women died from cervical cancer every year<sup>(1,2)</sup>. Early detection of precancerous lesion and early stages of cervical cancer using Pap smear can dramatically reduce morbidity and mortality of disease<sup>(3)</sup>.

In Thailand, there is a country-wide cervical cancer screening program. This program is available for free under the national health insurance policy since

2002. Unfortunately many Thai women avoid gynecological checkups and cervical cancer screening because of some old fashioned beliefs<sup>(4)</sup> with regards to modesty.

Health care providers have excellent opportunities to access any screening program. The Thais believe that health care providers have a lower risk of health problems than the general public. We wonder if this belief lulls Thai health care providers into a false sense of confidence that they are in excellent health.

The Pap smear is considered a specific health condition screening in the Thai government health care system and is not included in any annual checkup package of any government hospital. We investigated 250 women who specifically requested Pap smears in our outpatient clinic to see if abnormal Pap smear result showed different prevalence between the HC and the NHC groups. Their last Pap smear check ups were also looked into to determine if the level of self care was different between the two groups.

#### **Material and Method**

The study was conducted in a healthy population who came to the outpatient gynecologic clinic at Thammasat University Hospital for cervical cancer screening between April and May 2008. Each was asked to answer the questionnaire which was approved by the Faculty of Medicine, Thammasat University Ethical Committee on Clinical Research in 2007. Demographic and health specific data were collected from all participants using a structured questionnaire with an informed consent clause. Consent forms were obtained from all.

A liquid based preparation Papanicolaou smear (LBP by Thinprep<sup>R</sup>) was collected from all subjects. All the cervical cytological specimens were collected from the cervix with cervical brush by 5 rounds in scraping pattern. The brush was immersed and manually stirred vigorously in collecting vial containing preserved cell solution (Cytec<sup>R</sup>). Collecting vials were then submitted to the Department of Pathology, Thammasat University Hospital for daily processing. The results were read per normal routine by the resident cytopathologist. The lab result was later rechecked and confirmed by the senior pathologist.

Patients who had abnormal results of equal to or over "abnormal squamous/glandular cells of undetermined significance" (ASC-US or AGUS) were later assigned for colposcopy and colposcopic biopsy including endocervical curettage to further confirm the

result. The resulting data were analyzed using SPSS version 11.

#### **Results**

##### ***Demographic and health related data***

During April to May 2008 there were 250 participants consisting of 122 and 128 in HC and NHC groups, respectively. Both HC and NHC groups are similar in age, religious, income and education level in general. The range of ages was between 16 and 75 years, the mean age being  $40.2 \pm 10.5$  years.

The demographic characteristics of 250 women recruited for the study included: mean age 40.2 years at enrollment; 68.8% were married; 84.8% had education more than secondary level and 62.4% had first sexual intercourse after age of 20. Most participants (98%) were Buddhist (Table 1).

Mean age of HC and NHC were 38 and 42 years, respectively. Nearly 80 percent of both groups are older than age of 30. In both groups, the patients were mainly Buddhist. The educational level of both groups ranged from below primary to higher than graduate level. But the HC group had a significantly larger proportion of people with higher than secondary education (Table 1).

About 70% of both groups were married. Twenty four percent of HC had first sexual experience at age of below 20 year while thirty-two point five percent NHC had their first sexual experience below the age of 20. There were no other significant differences in the demographic data for both groups.

##### ***Precancerous lesion screening***

Abnormal Pap smear results of the participants are presented in Table 2. Overall prevalence of abnormal Pap smear from all subjects was 9.6%. The prevalence of atypical change (ASC, AGC), low-grade squamous intraepithelial lesion (LSIL) and high-grade squamous intraepithelial lesion (HSIL) were 7.6%, 0.8% and 1.2 % respectively.

Prevalence of abnormal Pap smears in the HC and the NHC was 9.8% and 9.4% respectively. HC and NHC groups showed atypical changes at 7.4 and 7.8 %, LSIL at 0.8 and 0.8% and HSIL 1.6 and 0.8% respectively. Both groups showed no significant difference of abnormal Pap smears in all categories.

Twenty four women with abnormal Pap smear from both groups underwent colposcopic examination, colposcopic directed biopsy and endocervical curettage for further histopathological investigation. Six women from the abnormal Pap smear group received

**Table 1.** Socio-demographic characteristics and sexual behaviors for HC and NHC at Thammasat University Hospital, Pathumthani, Thailand.

	HC (%)	NHC (%)	p-value
Age, years			0.78*
Mean $\pm$ SD	38.08 $\pm$ 7.89	42.33 $\pm$ 12.21	
$\leq$ 30	24 (19.7)	27 (21.1)	
$>$ 30	98 (80.3%)	101 (78.9)	
Religion			0.371**
Buddhist	121 (99.2)	124 (96.9%)	
Muslim	1 (0.8)	4 (3.1%)	
Education			.006*
Primary and lower	9 (7.6)	25 (19.7)	
Secondary and higher	110 (92.4)	102 (80.3)	
Marital status			0.632*
Married	87 (71.9)	85 (69.1)	
Single/Divorced/Widowed	34 (28.1)	38 (30.9)	
Age first sexual experience			
$\leq$ 20	25 (24.0)	37 (32.5)	
$>$ 20	79 (76.0)	77 (67.5)	
Last Pap smear history (years)			0.696*
$\leq$ 3	39 (32.0)	38 (29.7)	
$>$ 3	83 (68.0)	90 (70.3)	
Total	122	128	

\* Chi-Square test

\*\* Fisher's Exact test

**Table 2.** Prevalence abnormal Pap smear and CIN for HC and NHC at Thammasat University Hospital, Pathumthani, Thailand. (Using Bethesda classification system year 2001)

	HC (%) n = 122	NHC (%) n = 128	p-value
Abnormal Pap smear	12 (9.8)	12 (9.4)	1.00**
Atypical change (ASC, AGC)	9 (7.4)	10 (7.8)	1.00**
LSIL	1 (0.8)	1 (0.8)	1.00**
HSIL	2 (1.6)	1 (0.8)	1.00**
Histopathology of CIN	8 (6.56)	10 (7.81)	0.809*
CIN 1	6 (4.92)	8 (6.25)	0.701*
CIN 2/3	2 (1.64)	2 (1.56)	1.00**

colposcopic examination but had no cervical intraepithelial neoplasia (CIN). The results for six women were in a false positive category.

The percentage of HC and NHC groups with histologically confirmed CIN 1 were 4.92% and 6.25%, respectively (Table 2). Percentage of CIN 2/3 in HC and NHC groups was 1.64% and 1.56%.

### Discussion

Prevalence of abnormal Pap smears from

current study was 9.6% compared to 14.45% from the year 2006 study of patients from the same area by using conventional Pap smear<sup>(5)</sup>. Result from this study showed lower prevalence of abnormal Pap smear from overall subjects though we used a more sensitive liquid based Pap smear<sup>(6-8)</sup>. However, this investigation only utilized data from a limited number of patients over a short period of two months for a group comparison study.

This study shows the comparison of

prevalence of abnormal Pap smears in HC and NHC groups. They were found to be not significantly different in all aspects (Table 2). The Thai generally believe that health care providers have better knowledge about sickness and diseases. As a result it commonly believed that health care providers should have lower incidence of any disease. It is a surprise to find out that Pap smear results said that health care workers health status in this study was no different from that of the general public that they served.

Health care providers in this study all worked in Thammasat University Hospital. They received health benefits thru the hospital. There was no problem for them to pay for the Pap smear test. It was also a big surprise to find out from Table 1 that 68% of those HC who participated in this study had their last Pap smear check up more than 3 years ago. This result was not significantly different from those of the NHC group, namely 70.3%.

An attitude study of cervical cancer screening in Malaysia said that only a small number of research participants were aware that early detection and treatment of cervical cancer could save lives<sup>(9)</sup>. Many would rather not know if they had the disease. Nearly half of the participants had never thought of having cervical cancer screening. Several of them would like to have the Pap smear test but time constraints and lack of official encouragement resulted in their not having the test done.

Thai society has similar self and family values along with the rest of the Southeast Asia nations. Uptake of cervical cancer screening remained low in the whole region<sup>(10)</sup>. This is the first finding in Thailand that cervical cancer self care profile of health care workers were not better than that of the people they cared for. We expect the HC group to know that cervical cancer is the number one cancer incidence in the female population in the country. As a health care professional they are exposed to the information that cervical cancer was a normal occurrence in women who were sexually active. They also know that cases of cervical cancer with early detection were curable with full recovery. They were the group of women without time constraints because they worked under the same roof of where the Pap smear test was conducted. We have no idea why the HC group behaved in the same manner as the general public despite the advantage that should have been theirs as described *vid supra*.

The Study of Thai women in Northern California found they depended on the doctor's recommendation to have a Pap smear test<sup>(11)</sup>. The

Malaysian study mentioned that health care professional's recommendation would encourage the patient to seek cervical cancer screening. When the Thai health care workers acted in the same manner as the general public with regards to the cervical cancer issue, they apparently do not pass encouraging words to their clients; the people whom they care for to go for routine screening.

As a result from this finding, we recommend a further study to determine what it takes to increase self care awareness of healthcare provider regarding cervical cancer screening. When they understand the pro of cervical cancer screening they will be able to take care of themselves in that aspect, be more proactive and set a positive example. Only when they act with the knowledge that is already in their hands, the healthcare provider can act as both information provider and a counselor encouraging more of their patients to show up for the cervical cancer screening.

Nowadays there are vaccines for cervical cancer prevention. However, we need the entire force of health care worker to promote this cancer prevention idea to the public. Education starts at home. Only with a better awareness of the healthcare worker about cervical cancer, its detection and prevention, will allow the proper knowledge to reach the public for better overall quality of life free from this easily detectable, curable and preventable disease.

## Conclusion

This study was concerned with attention to the comparison of abnormal Pap smears between HC and NHC groups. The prevalence of abnormal Pap smears in health care providers was found to be statistically equivalent to that of their clients. We recommend a further study to determine what it takes to increase self care awareness of healthcare providers regarding cervical cancer screening. When they understand the advantage of cervical cancer screening they will be able to take care of themselves and can act as both information provider and a counselor encouraging more of their patients to show up for the cervical cancer screening.

## Conflict of interest

The authors reported no potential conflict of interest relevant to this article.

## Reference

1. Ferlay J, Bray F, Pisani P, Parkin DM. Cancer incidence, mortality and prevalence worldwide. In:

- GLOBOCAN 2002, Version 2.0 [database on the Internet]. IARC Cancer Base No. 5. Lyon: IARC Press; 2004 [cited 2010 Apr 30]. Available from: <http://www.dep.iarc.fr/globocan/globocan.htm>.
2. Deerasamee S, Martin N, Sontipong S, Sriamporn S, Sriplung S, Srivatanakul P, et al. Cancer in Thailand. Vol. II, 1992-1994. International Agency for Research on Cancer Technical report no. 34. Lyon, France: IARC Press; 1999.
  3. Nieminen P, Kallio M, Hakama M. The effect of mass screening on incidence and mortality of squamous and adenocarcinoma of cervix uteri. *Obstet Gynecol* 1995; 85: 1017-21.
  4. Suwannarurk K, Sueblinvong T, Sermboon A, Treetampinich C, Pongrojpraw D. Knowledge and attitudes in Pap smear screening among women at antenatal and postpartum clinic at Thammasat University Hospital. *Thammasat Med J* 2004; 1: 11-9.
  5. Suwannarurk K, Tapanadechopol P, Pattaraarchachai J, Bhamarapravati S. Hospital-based prevalence and sensitivity of high-risk human papillomavirus in Thai urban population. *Cancer Epidemiol* 2009; 33:56-60.
  6. Carpenter AB, Davey DD. ThinPrep Pap test: performance and biopsy follow-up in a university hospital. *Cancer* 1999; 87:105-12.
  7. Cheung AN, Szeto EF, Leung BS, Khoo US, Ng AW. Liquid-based cytology and conventional cervical smears: a comparison study in an Asian screening population. *Cancer* 2003; 99: 331-5.
  8. Guo M, Hu L, Martin L, Liu S, Baliga M, Hughson MD. Accuracy of liquid-based Pap tests: comparison of concurrent liquid-based tests and cervical biopsies on 782 women with previously abnormal Pap smears. *Acta Cytol* 2005; 49: 132-8.
  9. Wong LP, Wong YL, Low WY, Khoo EM, Shuib R. Cervical cancer screening attitudes and beliefs of Malaysian women who have never had a Pap smear: a qualitative study. *Int J Behav Med* 2008; 15: 289-92.
  10. Domingo EJ, Noviani R, Noor MR, Ngelangel CA, Limpaphayom KK, Thuan TV, et al. Epidemiology and prevention of cervical cancer in Indonesia, Malaysia, the Philippines, Thailand and Vietnam. *Vaccine* 2008; 26(Suppl 12): M71-9.
  11. Tsui J, Tanjasiri SP. Cervical cancer screening among Thai women in Northern California. *J Womens Health (Larchmt)* 2008; 17: 393-401.

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## บุคลากรในโรงพยาบาลมีความซุกซนของความผิดปกติการตรวจคัดกรองมะเร็งปากมดลูกน้อยกว่าประชากรทั่วไปหรือไม่

คมสันต์ สุวรรณฤกษ์, กรณ์กาญจน์ ภมรประวัติชนะ, ภาคภูมิ เขียวละม้าย, ยุทธเดช ทวีกุล, กริษา ไม้เรียง, เย็นฤดี ภูมิถาวร, จรรยา ภัทรอาชาชัย

**ภูมิหลัง:** ประชาชนไทยส่วนใหญ่เชื่อว่าบุคลากรในโรงพยาบาลควรจะมีความเสี่ยงต่อการเกิดโรคต่างๆ น้อยกว่าประชาชนทั่วไป ความเชื่อนี้อาจทำให้บุคลากรในโรงพยาบาลมีความเชื่อที่ผิดคิดว่าตนเอง มีความเสี่ยงต่ำ ต่อการเกิดมะเร็งปากมดลูก

**วัตถุประสงค์:** เพื่อศึกษาเปรียบเทียบความซุกซนของความผิดปกติจากการตรวจคัดกรองมะเร็งปากมดลูกทางเซลล์ วิทยาชนิดแผ่นบาง ระหว่างบุคลากร และผู้รับบริการในโรงพยาบาลธรรมศาสตร์เฉลิมพระเกียรติ

**วัสดุและวิธีการ:** บุคลากรและผู้รับบริการในโรงพยาบาล ที่มารับการตรวจคัดกรองมะเร็งปากมดลูกในช่วง เดือน เมษายน ถึงเดือนพฤษภาคม พ.ศ. 2551 ได้ถูกคัดเลือกเพื่อรับตรวจทางเซลล์วิทยาชนิดแผ่นบางจำนวน 250 ราย สตรีที่มีผลการตรวจผิดปกติจะได้รับการตรวจเพิ่มเติมโดยการส่องกล้องขยายตรวจที่ปากมดลูก และตัดชิ้นเนื้อเพื่อยืนยันการวินิจฉัย

**ผลการศึกษา:** ผลการตรวจวิเคราะห์พบความผิดปกติจากการตรวจคัดกรองมะเร็งปากมดลูกในบุคลากร โรงพยาบาล คิดเป็นร้อยละ 9.8 โดยแยกเป็นความผิดปกติชนิด ASC-US ร้อยละ 0.8, LSIL ร้อยละ 1.6 และ HSIL ร้อยละ 7.4 ขณะที่ผู้รับบริการพบความผิดปกติจากการตรวจคัดกรองมะเร็งปากมดลูกคิดเป็นร้อยละ 9.4 โดยแยกเป็น ความผิดปกติชนิด ASC-US ร้อยละ 0.8, LSIL ร้อยละ 0.8 และ HSIL ร้อยละ 7.8 ผลการตรวจทางพยาธิวิทยาของ บุคลากรโรงพยาบาลชนิด CIN 1 ร้อยละ 4.92 และ CIN 2/3 ร้อยละ 1.64 ขณะที่ผลการตรวจทางพยาธิวิทยา ของผู้รับบริการชนิด CIN 1 ร้อยละ 6.25 และ CIN 2/3 ร้อยละ 1.56 ทั้งสองกลุ่มไม่แตกต่างกัน

**สรุป:** ความซุกซนของการเกิดความผิดปกติจากผลการตรวจคัดกรองมะเร็งปากมดลูกในบุคลากรและผู้รับบริการ ในโรงพยาบาล ธรรมศาสตร์เฉลิมพระเกียรติ ไม่แตกต่างกัน

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