

Incidence of Breast Cancer in Phitsanulok Province

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Abstract

This research was carried out to identify the incidence of breast cancer in Phitsanulok from January 1 to December 31, 2005. All twenty hospitals in nine districts of Phitsanulok were included for data collection of breast cancer patients. The ICD-9 program identified 202 patients with breast cancer who lived in Phitsanulok and were included in the analysis. The result of the study revealed that the incidence rate of breast cancer per 100,000 in the year 2005 was 29.75. When gender was considered, the incidence rate of breast cancer per 100,000 was 1.47 for males and 57.30 for females. The age-standardized incidence rate (ASR) of breast cancer in Phitsanulok was 24.50: 1.77 among men and 23.67 among women. Using holistic considerations, a high rate of ASR was shown in Bang Kratum, Phrom Phiram and Wat Bot Districts being 118.71, 44.75 and 42.22, respectively. Additionally, Noen Maprang District had the lowest ASR at 8.12. When compared to the highest ASR in Thailand, the ASR per 100,000 in Phitsanulok was less than that in the Pra Khanong District of Bangkok (81.1 in the year 2001). In conclusion, this study have identified the incidence of breast cancer in Phitsanulok. The ASR of this report provides useful evidence for evaluation and monitoring of breast cancer in Phitsanulok.

Keywords: Breast cancer; Incidence; Phitsanulok; Age-standardized incidence rate

Introduction

Breast cancer is the cancer of breast tissue. Worldwide, it is the most common form of cancer in females, affecting at some time in their lives, approximately one out of nine to thirteen women who reach the age of ninety in the western world. It is the second most fatal cancer in women (after lung cancer), and the number of cases has significantly increased since the 1970s, a phenomenon partly blamed on modern lifestyles in the western world (Laurance, 2006). Because the breast is composed of identical tissues in males and females, breast cancer can also occur in males, although cases of male breast cancer account for less than one percent of the total breast cancer (Breast cancer cause, control and cure for the breast of humankind, 2007).

According to the World Health Organization, more than 1.2 million people will be diagnosed with breast cancer this year worldwide. In 2000, the estimates of new breast cancer cases in Central Africa, North America and South East Asia were 3,902, 203,044 and 55,907 cases, respectively (Breast cancer: Statistics on incidence, survival, and screening, 2006). According to the American Cancer Society, 212,920 women will be diagnosed with breast cancer in 2006, and 40,970 will die from the disease (Breast cancer fact sheet, 2007).

In Thailand, breast cancer is the second most commonly diagnosed form of cancer after cervical cancer among females. It accounts for about 14% of the total female cancers. The estimated age-standardized incidence rate (ASR) was 13.5 per 100,000 in the female population from 1988-1992 and 16.3 per 100,000 from 1992-1994 (Mahidol University, 1985; Mahidol University, 1986; Mahidol University, 1987).

Over the peroid from 1993 to 1997, the Lampang Regional Cancer Center reported a total of 388 breast cancer cases in Lampang Province: 12 cases in males (0.3% of all

the male cancer cases) and 376 cases in females (11.5% of the female cases), giving a sex ratio of male to female incidence of breast cancer at 1:32. Further, the estimated age standardized incidence rate was 19.2 per 100,000 in the female population (Pongnikorn et al., 2002).

There has been no previous study on the incidence of breast cancer in Phitsanulok. Thus, the purpose of this research was to identify the incidence of breast cancer in Phitsanulok Province.

Materials and Methods

All data on cancer patients were collected during January 1 to December 31, 2005 by the staff of the Department of Radiological Technology, Faculty of Allied Health Sciences, Naresuan University. Twenty hospitals, including Buddhachinnaraj Hospital, 3 army hospitals, 7 private hospitals, 8 community hospitals and Naresuan University Hospital were recruited as sites for data collection. Most of the new breast cancer cases were collected using the ICD-9 program for medical records. The data collected for each breast cancer patient consisted of name, hospital number, residential address, age, sex, date of diagnosis, site of cancer, histology, method of diagnosis, and extent of disease.

The statistical methods focused on the incidence, which is the number of new cases in a defined population within a specific period of time (January 1 to December 31, 2005). The age-specific rate (AR) is the incidence rate in a specific group, where $AR = N_i / P_i \times 100000$ with N_i being the number of new breast cancer cases occurring in the specific age group, and P_i being the population of the specific age group in Phitsanulok. The population of Phitsanulok was based on the mid year 2005 census report. The age-standardized incidence rate (ASR), which is a summary measure of the rate that a population will have if it has a standard age structure, was also calculated. The data on world standard population was used to calculate the ASR. Data were also analyzed per 100,000 of the population.

Results

Most of the new breast cancer cases were collected using the ICD-9 program for medical records. Three hospitals including Pat Porn, Phisanuwej and Inter Wejchakarn hospitals did not use the ICD-9 program, so breast cancer patients' data were collected manually. A total of 342 new breast cancer cases were identified among patients living in Phitsanulok and 103 among those living in other provinces. There were 102 cases among patients living in 7 provinces around Phitsanulok incorporating Sukhothai, Kamphaeng Phet, Phichit, Phetchabon, Uttaradit and Tak with 39, 25, 16, 9, 7 and 6 new breast cancer cases reported, respectively. There was only one patient case who resided in Nakorn Ratchasima Province. A total of 239 cases who lived in Phitsanulok were identified. Cases with the same personal identity were counted only once, the number was therefore reduced to 202 cases for further analysis. As shown in Table 1, there were 197 cases among women and 5 cases among men with the sex ratio of male to female patients being 1:39. The number of new breast cancer patients in each district varied from 3-46 cases. A high number of new patients were found in Muang, Phrom Phiram, Nakhon Thai, Bang Kratum and Bang Rakam Districts, comprising 46, 46, 24, 23 and 22 cases, respectively. Noen Maprang had the lowest number of new patients being 3 as shown in Table 1. The incidence rate of breast cancer per 100,000 in Phitsanulok is shown in Table 2 and Figure 1.

The incidence rate of breast cancer per 100,000 of the population classified by districts varied from 5.70-68.61 in both sexes with 0.00-7.04 in males and 11.08-133.40 in females. The highest rate of breast cancer incidence per 100,000 were found among people who live in Bang Kratum, Chat Trakan and Phrom Phiram, being 68.61, 56.60 and 55.33, respectively. Noen Maprang District had the lowest incidence of breast cancer incidence per 100,000 at 5.70. The total ASR was 24.50, divided into 1.77 for males and 23.67 for females as shown in Table 3 and Figure 2.

Table 1. The number of new breast cancer cases in Phitsanulok, 2005

Districts	Number of new breast cancer (cases)			%
	Male	Female	Total	
Muang	1	45	46	21.70
Nakhon Thai	1	23	24	11.32
Bang Rakam	0	22	22	10.38
Bang Kratum	0	23	23	10.85
Wang Thong	0	16	16	7.55
Phrom Phiram	2	44	46	21.70
Chat Trakan	0	18	18	8.49
Noen Maprang	0	3	3	1.40
Wat Bot	1	13	14	6.60
Total	5	197	202	100.00

Table 2. The incidence rate of breast cancer per 100,000 of the population in Phitsanulok, 2005

Districts	Incidence rate per 100,000		
	Male	Female	Average for both genders
Muang	1.12	50.14	23.69
Nakhon Thai	2.70	62.76	33.35
Bang Rakam	0.00	50.11	25.94
Bang Kratum	0.00	133.40	68.61
Wang Thong	0.00	28.18	14.09
Phrom Phiram	4.90	104.00	55.33
Chat Trakan	0.00	114.81	56.60
Noen Maprang	0.00	11.08	5.70
Wat Bot	7.04	90.38	48.99
Total	1.47	57.30	29.75

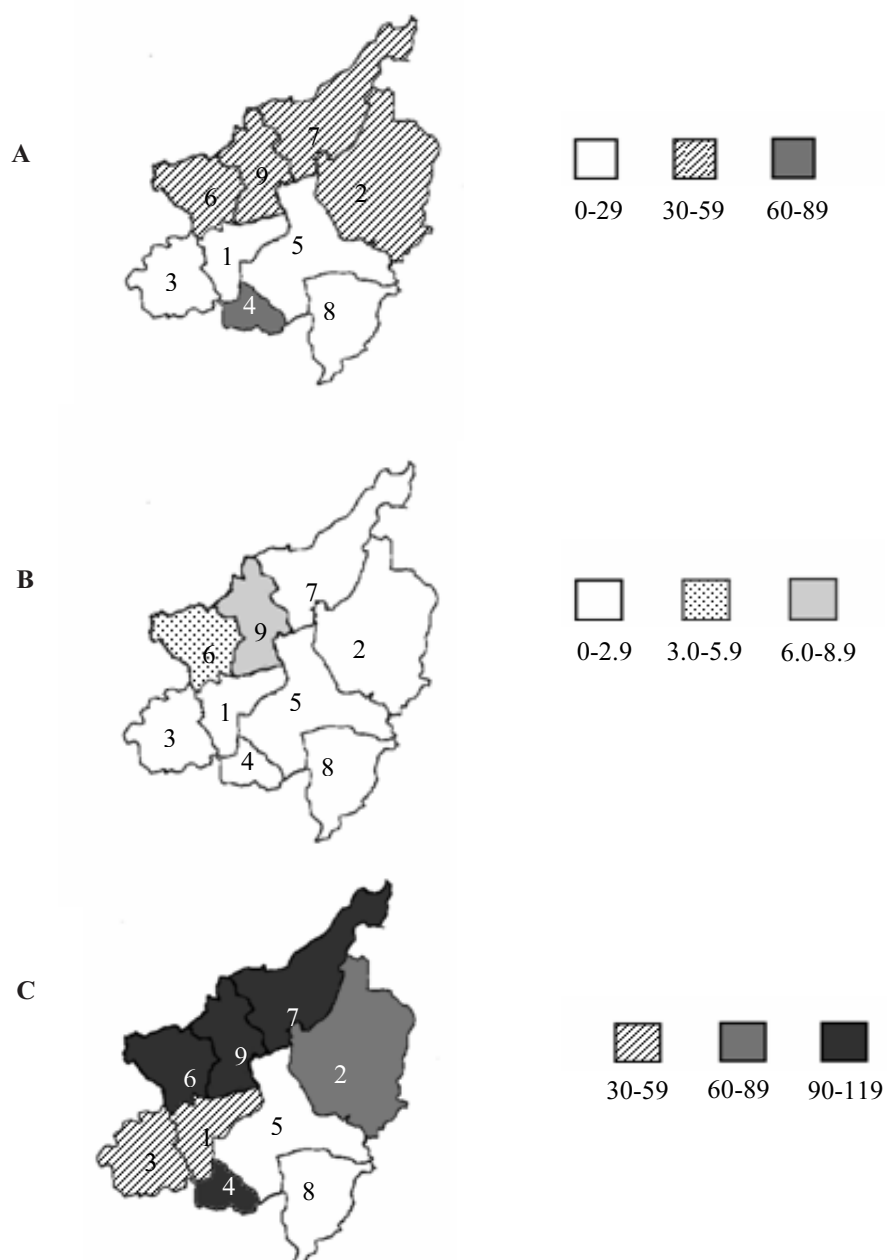
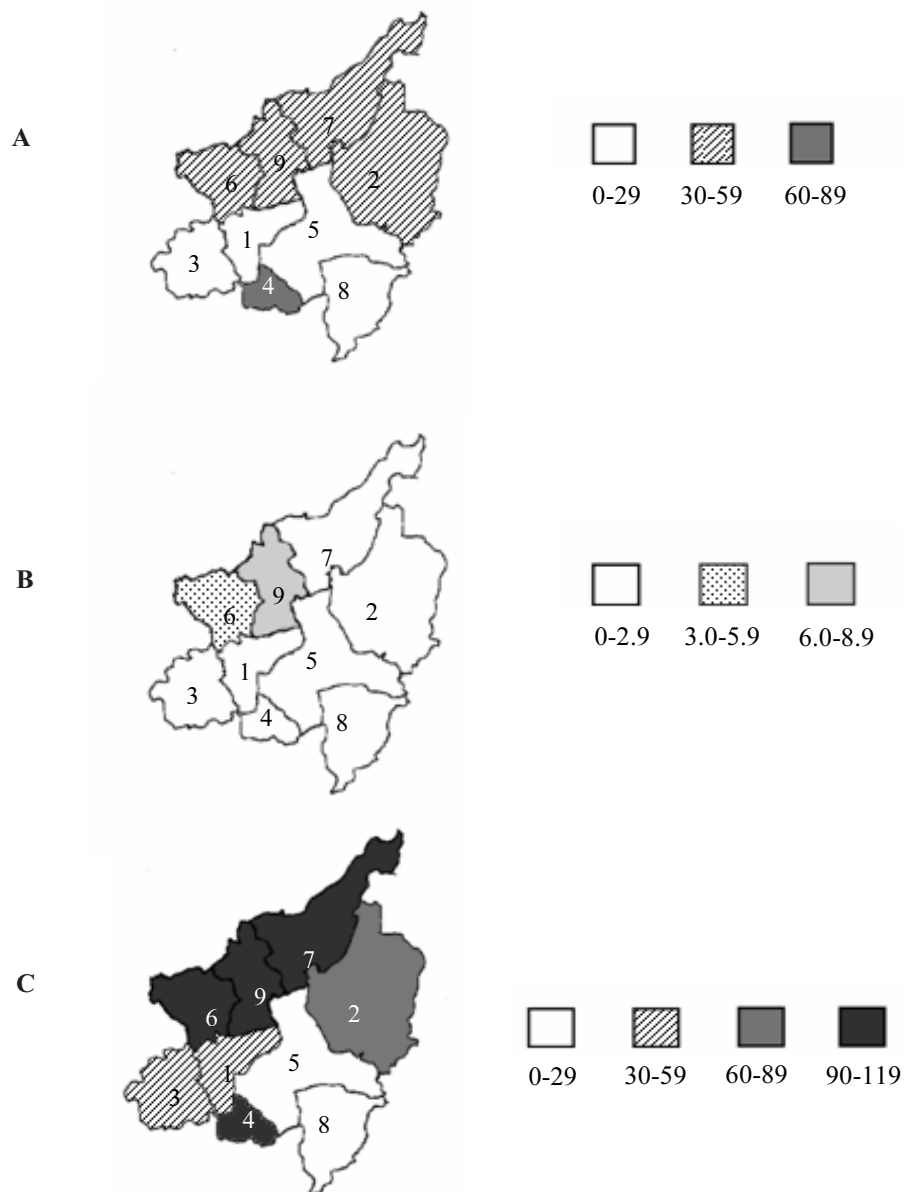


Figure 1. Mapping of the geographic assessment of the incidence rate of breast cancer per 100,000 population in Phitsanulok in the year 2005: both sexes (A), male (B) and female (C). The numbers 1 to 9 represent the following districts: Muang (1), Nakhon Thai (2), Bang Rakam (3), Bang Kratum (4), Wang Thong (5), Phrom Phiram (6), Chat Trakan (7), Noen Maprang (8) and Wat Bot (9).

Table 3. Age-standardized incidence rate (ASR) of breast cancer in Phitsanulok, 2005

District	ASR		
	Male	Female	Average for both genders
Muang	1.70	20.86	21.99
Nakhon Thai	3.46	24.04	25.74
Bang Rakam	0.00	19.94	19.93
Bang Kratum	0.00	118.71	118.71
Wang Thong	0.00	11.53	11.53
Phrom Phiram	4.92	42.26	44.75
Chat Trakan	0.00	25.90	25.90
Noen Maprang	0.00	8.12	8.12
Wat Bot	8.91	37.96	42.22
Total	1.77	23.67	24.50

**Figure 2.** Mapping of the geographic assessment of the age-standardized incidence rate of both sexes (A), male (B) and female (C). The numbers 1 to 9 represent the following districts: Muang (1), Nakhon Thai (2), Bang Rakam (3), Bang Kratum (4), Wang Thong (5), Phrom Phiram (6), Chat Trakan (7), Noen Maprang (8) and Wat Bot (9).

In females, the highest incidence of breast cancer was for those aged 25-64 especially between the ages of 35-59. The AR using 5-year intervals is shown in Table 4 and Figure 3.

Table 4. Age- specific rate (AR) of breast cancer in Phitsanulok, 2005

Age group	Male			Female			Total		
	Cases	Population	AR	Cases	Population	AR	Cases	Population	AR
0-4	0	18825	0.00	1	17746	5.56	1	34771	2.88
5-9	0	24155	0.00	1	22717	4.90	1	46874	2.13
10-14	0	25346	0.00	0	23884	0.00	0	49230	0.00
15-19	1	25357	3.94	0	25004	0.00	1	49359	2.03
20-24	0	29433	0.00	2	27156	7.36	2	56589	3.53
25-29	0	29942	0.00	6	29239	20.52	6	59181	10.14
30-34	0	30707	0.00	8	30632	26.12	8	61379	13.03
35-39	0	31535	0.00	19	32390	58.66	19	63928	29.72
40-44	0	30758	0.00	33	31731	104.00	33	62379	52.90
45-49	1	25717	3.89	45	26207	171.71	46	51924	88.59
50-54	0	20161	0.00	32	21098	151.67	32	39559	80.89
55-59	0	14418	0.00	23	15442	148.94	23	29856	77.04
60-64	2	10141	19.72	9	11513	78.17	11	21594	50.94
65-69	0	9418	0.00	5	10542	47.43	5	19960	25.05
70-74	0	6352	0.00	6	8064	74.40	6	14456	41.51
75-79	0	4162	0.00	3	5706	52.58	3	9873	30.39
80-84	0	1967	0.00	4	2992	133.69	4	4959	80.66
85+	1	1285	77.82	0	1712	0.00	1	3133	31.92

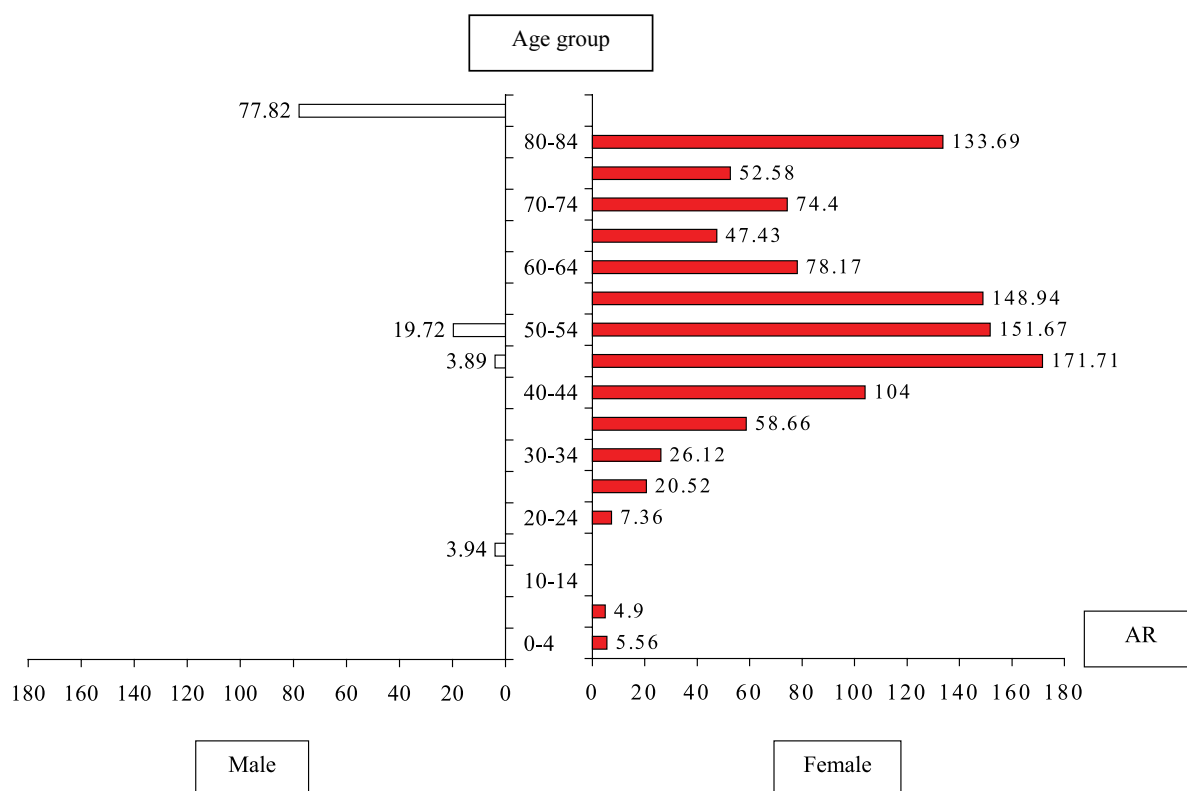


Figure 3. Age- specific rate (AR) of breast cancer per 100,000 of the population in Phitsanulok, 2005.

Discussion and Conclusions

This is the first report of breast cancer incidence in Phitsanulok and may be the first in the lower northern region of Thailand. When the ASR per 100,000 was compared to Lampang, a nearby province in the northern region, it was found that the ASR in Phitsanulok was similar to the ASR in Lampang. In contrast, when compared to the highest ASR in Thailand, the Pra Khanong District of Bangkok, the ASR per 100,000 in Phitsanulok was less than in Pra Khanong (81.1 in the year 2001) (Pongnikorn, et al., 2002). This could be due to the difference in lifestyle and genetic of two different geographic locations. (Breast cancer research program, 2007). However, the breast cancer incidence data in this research were collected in a 1-year period. This study should be continued and conducted for a 5-year period to assess trends and see if apparent differences are real or artifacts.

In conclusion, this study identified the incidence of breast cancer in Phitsanulok. Furthermore, the ASR of this study provides useful evidence for evaluation and monitoring of breast cancer in Phitsanulok.

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