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What is This?
Cervical cancer screening in Thailand: an overview

Supannee Sriamporn, Thiravud Khuhaprema and Max Parkin

INTRODUCTION

Cervical cancer kills about 274,000 women each year worldwide and disproportionately affects the poorest, most vulnerable women. At least 80% of cervical cancer deaths occur in developing countries, with most occurring in the poorest regions – South Asia, sub-Saharan Africa, and parts of Latin America. It was the most common cancer affecting Thai women in 1995-1997, with an estimated age-standardized incidence rate of 19.5 per 100,000.2

Health-care providers in developing countries regularly see women with advanced, incurable cervical cancer. At this late stage, there is little they can do to save women’s lives. In addition, drugs designed to ease cancer pain are often unavailable. Yet cervical cancer can be readily prevented, even in women at high risk of the disease, through screening and treatment using relatively simple technologies. When precancerous changes in cervical tissue are found and the abnormal tissue is successfully treated, a woman will not develop cancer.

COUNTRY PROFILE

The population of Thailand is estimated to be 64.2 million (2002) (Figure 1). There are about 16.4 million women aged 25-64 years (25% of the population). The population comprises about 75% Thai, 14% Chinese and 11% of other origin. Most people are Buddhist (95%). In all, 92.6% of the adult population (age 15 years or more) is literate.

For administrative purposes, the country is divided into 76 provinces (Changwats), each of which contains several districts (Amphurs). Thailand is considered to be a developing country. The Ministry of Public Health is responsible for all health services.

CANCER REGISTRATION IN THAILAND

Cancer registries are recognized as playing a major role in the planning, evaluation and monitoring of cervical cancer-screening programmes. Cancer registry data have been used extensively for the planning of cancer services in Thailand.
The first population-based cancer registry started in 1986 in Chiang Mai, followed by Khon Kaen in 1988, Songkhla and Bangkok in 1990 and Lampang in 1993. In 1993, with the cooperation of the registries of Chiang Mai, Khon Kaen and Songkhla, the National Cancer Institute and the International Agency for Research on Cancer (IARC), the first volume of Cancer in Thailand was published. In 1999, the second volume was published with the data of five provinces: Bangkok, Chiang Mai, Khon Kaen, Songkhla and the new registry of Lampang. The third volume was published in 2003.

MAGNITUDE OF THE CERVICAL CANCER BURDEN IN THAILAND

The latest comprehensive estimate of the cancer profile in Thailand is for 1995–1997. Figure 2 shows the 10 leading cancers in women. Cervical cancer is the most common cancer in Thai women with, age-standardized incidence rates (ASR) of 19.5 per 100,000 women at risk. Figure 3 shows age-specific incidence in Lampang region, exhibiting a pattern of early increase with a steep rise to about ages 45–50 years, followed by a plateau and a decline.

Incidence rates, according to provincial cancer registry, are the highest in the northern provinces of Chiang Mai (standardized incidence 25.3 per 100,000) and Lampang (24.2 per 100,000). It might be noted that the prevalence of infection of women with human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) in these two provinces is higher than in the other three cancer registry areas. Most cervical cancer cases are squamous cell carcinoma (75–85%), followed by adenocarcinoma (15–20%).

From the early years of population-based cancer registration in Thailand, the overall incidence has declined, although in some regions small increases have been observed. The recorded stage at diagnosis is most commonly regional extension, as shown in Figure 4.

CERVICAL CANCER SCREENING IN THAILAND

Ideally, a screening programme for cervical cancer will identify women at risk, ensure that they are examined at regular, defined intervals and provide appropriate follow-up and treatment for those women with abnormal findings on cytology. In Thailand, there have been no ‘organised’ programmes of this kind. For the most part, examinations are provided to women ‘on demand’, or when attending services such as family planning, pregnancy counselling, ante- and post-natal clinics or sexually transmitted disease (STD) clinics. Screening is even more haphazard than this, involving fee-for-service testing by doctors, with sporadic campaigns mounted by local health departments or charitable foundations.

A few case-control studies have been carried out to investigate the effectiveness of these unsystematic programmes, in which Papanicolaou (Pap)-smear history was obtained via interviews with the participants. Wangsuphachart et al. observed that the risk of invasive cancer decreased with increasing frequency of having a Pap smear, that a history of previous Pap smear was protective, with a very low risk (odds ratio [OR] 0.15, 95% confidence interval [CI] 0.01–0.70) in women who had had a smear 1–12 months previously. A similar study found that a history of previous Pap smear was protective, with a very low risk (odds ratio [OR] 0.15, 95% confidence interval [CI] 0.01–0.70) in women who had had a smear 1–12 months previously. A larger hospital-based case-control study in southern Thailand found that the risk of cervical cancer increased with the interval since the previous Pap test.

However, coverage of the population remains low. In Khon Kaen Province, a survey study conducted in 2000 found that 33% of women had never been screened for cervical cancer during their life time. The percentage was even higher (52%) among 16,000 women recruited into a cohort study in the same province during the late 1990s. Furthermore, many women who are found to have an abnormal smear do not receive appropriate treatment.

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**Figure 2** Leading cancers in women in Thailand, estimated age-standardized incidence rates (ASR) per 100,000, 1996

**Figure 3** Age-specific incidence rates per 100,000 of cervical cancer in Lampang, 1993–1997
A study by Thinkhamrop et al.16 found that 41% of women with abnormal tests were lost to follow up. The primary reason given for non-attendance was poor communication: 36% of non-attenders did not receive the appropriate letter informing them of the results; 10% did not understand the information provided in the letter; 5% received a letter stating that their test was normal and 14% believed that their test result was not serious. A secondary reason for non-attendance was travel-related issues.

From 1999–2001, Deerasamee et al.17 carried out a pilot project (in Nakhon Phanom Province, northeast Thailand) to evaluate a screening programme for cervical cancer using cytology as the principal screening test. From this study, proposals to the government were formulated for a national screening programme.

In 2002, the Department of Medical Services of the Ministry of Public Health proposed the goal of screening the entire population of women in Thailand at ages 35, 40, 45, 50, 55 and 60 years. As a first step, measures to increase the capacity for obtaining and interpreting Pap smears, as well as for treating the abnormalities detected by screening, have been put in place. These include training courses for nurses and cytologists, as well as additional resources for cryotherapy and loop electrosurgical excision procedure (LEEP).

**Figure 4** Stage at diagnosis of cervical cancer

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Cases*</th>
<th>Controls*</th>
<th>OR</th>
<th>95% confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>130</td>
<td>464</td>
<td>1.00</td>
<td>—</td>
</tr>
<tr>
<td>Only one</td>
<td>33</td>
<td>106</td>
<td>0.92</td>
<td>0.58–6.46</td>
</tr>
<tr>
<td>Once every 2–5 years</td>
<td>14</td>
<td>88</td>
<td>0.39</td>
<td>0.21–0.74</td>
</tr>
<tr>
<td>Once a year</td>
<td>7</td>
<td>63</td>
<td>0.25</td>
<td>0.12–0.59</td>
</tr>
<tr>
<td>&gt;Once a year</td>
<td>1</td>
<td>16</td>
<td>0.20</td>
<td>0.03–1.56</td>
</tr>
</tbody>
</table>

*Exclude subjects with no, or unknown, history of sexual intercourse

Source: Wangsuphachart et al.11

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**RESEARCH ON SCREENING POLICIES AND PRACTICES IN THAILAND**

**Visual inspection**

In Roi Et Province, an experimental project has evaluated the safety and efficacy of a programme based on screening by visual inspection by trained nurses following acetic acid (VIA). The programme adopted the ‘see and treat’ method,18 in which observed lesions are treated by cryotherapy immediately following the exam. Of the 6000 women examined, 13.3% were VIA positive, and 98.5% of those eligible accepted immediate treatment. There were few adverse effects of treatment – only 33 women returned with a perceived problem, of which 17 needed some clinical management (other than reassurance). Both VIA and cryotherapy were highly acceptable to the patients (over 95% expressed satisfaction with their experience). At one-year follow-up, the squamo-columnar junction was visible to the nurses and 94.3% of women were VIA negative. The authors concluded that VIA may be a safe and cost-effective method of reducing death and disability in a developing country population such as that of rural North East Thailand.
Mandelblatt et al.\textsuperscript{19} used a population-based simulation model to evaluate the incremental societal costs and benefits (in terms of discounted costs per year of life saved [LYS]) of seven screening techniques. These included visual inspection of the cervix after applying acetic acid (VIA), human papillomavirus (HPV) testing, Pap smear and combinations of screening tests. Compared with no screening, the model suggested that VIA, performed at 5-year intervals in women aged 35–55 years with immediate treatment if abnormalities are found, was the least expensive option and saved the greatest number of lives. HPV screening resulted in similar costs and benefits based on the assumptions that the test cost is 5 US dollars and that 90% of women will undergo follow-up after an abnormal screen. Cytology (Pap smear) was also a reasonable alternative depending on sensitivity and completeness of follow-up.

Self-sampling

Pengsaa et al.\textsuperscript{20–21} have tested the use of a self-sampling kit (Kato device) as an alternative to the conventionally obtained Pap smear, as a potential method for increasing coverage of and compliance with screening in the rural population of North East Thailand. Comparison of the adequacy and cytological diagnosis of the smears showed little difference between the two methods. The self-sampling device was generally well accepted by women, although a greater proportion of those women with a higher educational background had reservations about using it.\textsuperscript{22} The investigators concluded that the self-scraping method could be useful in mass screening programmes in rural settings where adequate numbers of physicians and other trained medical personnel may not be available.

Mobile units

The use of mobile clinics as a means of reducing geographic barriers to participation in screening has a long history. Swadiwitdhipong et al.\textsuperscript{10} reported on experience with such a mobile unit in a rural district of Tak Province (Northern Thailand). Perhaps not surprisingly, surveys carried out before and after the intervention showed that the presence of additional screening capacity in the district had led to an improvement in knowledge of screening in the population, and a greater proportion of women who had ever had a test. The prevalence of cervical intraepithelial neoplasia III (CIN III) was 3.5/1000 smears in this screening programme.

HPV testing

HPV testing has been used in recent years either to identify high-risk women, or to help with the triage of women found to have low-grade abnormality on cytology, with respect to the most appropriate method of follow-up. There has been little experience with these approaches in Thailand. Prevalence of HPV in healthy women in Thailand is estimated to be 9–20%.\textsuperscript{15,23,24} Ekalaksananan et al.\textsuperscript{25} observed that the proportion of cells in cervical scrapes in which HPV DNA was detected correlated with the grade of cytological abnormality, and that it was present in 46, 90 and 100% of histologically detected carcinoma in situ, squamous cell carcinoma and adenocarcinoma, respectively. Almost all of the HPV DNA detected was of type 16, 18 or 33.

Future plans

In the immediate future, the Ministry of Public Health plans to increase coverage of screening in the target age group (35–60 years). This involves providing special funds to the provincial health authorities for each examination performed. The programme will be based largely upon cytology screening (Pap smear), although it is likely that programmes based upon VIA will continue in certain provinces. There are additional plans to increase the capacity for HPV testing as an adjunct to cytology, although at present there is no intention of introducing this as a primary screening test.

Authors’ affiliations

Supannee Sriamporn, Associate Professor and Acting Vice Dean of Academic Affairs, Department of Epidemiology, Faculty of Public Health, Khon Kaen University, Thailand

Thiravud Khuhapremsri, Director, National Cancer Institute, Bangkok, Thailand

Max Parkin, Honorary Senior Research Fellow, National Cancer Institute, Bangkok, Thailand

REFERENCES