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## SPECIAL ARTICLE

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# RTCOG Statement of Policy

*A Policy Statement from the Royal Thai College of Obstetricians and Gynaecologists as issued by the RTCOG Executive Board*

## Preinvasive Cervical Cancer Screening and Treatment by Visual Inspection with Acetic Acid (VIA) and Cryotherapy.

### Introduction:

Cervical cancer is the most common cancer among Thai women, with the age-standardized incidence rate (ASR) of 24.7 per 100,000.<sup>(1)</sup> In Thailand, an estimated 7,000 new cases occur each year. Cervical cancer is the third, behind liver and lung cancer, leading cause of cancer mortality among Thai women. There are approximately 7 women die everyday from cervical cancer.<sup>(2)</sup> The peak incidence of cervical cancer among Thai women occurs between the ages of 45 to 55. These patients are in the working age group, many of them have children studying in the secondary school or higher; so having cervical cancer will have a tremendous impact to their families.

Cervical cancer is a preventable disease provided that early detection and appropriate treatment of preinvasive cervical lesions can be done effectively. This has been shown in developed countries where organized screening program have been implemented.<sup>(3)</sup> In Thailand, there has been a long enduring effort to decrease the incidence of and mortality from cervical cancer since 1952 by using Pap smear as a screening test but without much success. So, a new strategy in cervical cancer prevention and control is needed.

### Definition:

Screening: The method or technology used

(with the objective) to early detection of preinvasive cervical lesion(s). The lesion then can be eradicated effectively by an easy/ uncomplicated mean.

Preinvasive (precancerous) cervical lesions: Lesions which have the following pathological diagnoses namely, cervical intraepithelial neoplasia (CIN) II / III, high-grade squamous intraepithelial lesion (HSIL), and/or adenocarcinoma in situ (AIS).

Secondary prevention of cervical cancer: Screening and treatment of preinvasive cervical lesion(s).

### Screening by visual inspection with acetic acid (VIA):<sup>(4,5)</sup>

Preinvasive cervical cancer screening by VIA - visual inspection with acetic acid - is performed by swabbing the cervix with 3-5% acetic acid solution. After one minute, under good light source, cervix is carefully inspected (this step resembles colposcopy). Acetic acid coagulates protein and also acts as a dehydrating agent causing cells and tissues become opaque (acetowhite) to light temporary. The intensity of the white colour of the acetowhite area depends on the nuclear density of the cells. The acetowhite lesions seen in the cervical transformation zone abutting (touching) the squamo-columnar junction (SCJ) is considered VIA-positive. Importantly, the result of the test could be known almost immediately and patient can be treated, by an appropriate mean,

in a “see and treat - single visit approach (SVA)” fashion if indicated. However, immature squamous metaplasia, reparative epithelium, and transient HPV-related changes could also appear as fainted acetowhite areas. The limitations of screening by VIA include the inability to evaluate lesion situated inside the endocervical canal. It is unsatisfactory in women whose SCJ are not well seen, especially in most of the old aged women. Also, presently, the evidence in diagnosis could not be retrieved.

In comparison with other methods of screening presently available such as, Pap smear, and HPV (human papillomavirus) DNA testing, each method has its own advantage and disadvantage (see Table 1). Published studies on efficacy from many countries such as India, China, and South Africa show that VIA has similar (or even better) sensitivity 66-79% vs 44-78%, but somewhat lower specificity, 49-86% vs 91-96%, when compared to Pap smear.<sup>(6-8)</sup> So, with the relatively high false positive results it could lead to an unnecessary intervention. HPV DNA testing has a high sensitivity and moderate specificity; however, the cost for performing the test at the present is high. In the future, when the price of the test is down it would have a significant role in cervical cancer screening program in the developing countries.

## Cryotherapy:

The effectiveness of cryotherapy in treatment of cervical intraepithelial neoplasia, according to Cochrane reviews, is 86-95% success rate which is not statistically different from other surgical techniques include, LEEP – loop electrosurgical excision procedure, laser abrasion, laser conization, or cold-knife conization.<sup>(9,10)</sup> Risk of persistent disease was higher among women with large lesions.<sup>(11)</sup> Cryotherapy using CO<sub>2</sub> gas is convenience, safe, low cost in operating, and it can be performed with very few side effects by trained nurses. One disadvantage of cryotherapy is that it does not provide tissue for pathological diagnosis. However, studies suggest that cryotherapy is protective against the future development of cervical disease among women with current HPV infection. Because of this, and due to the low morbidity of cryotherapy, the occasional treatment of screen-positive women without confirmed cervical disease is acceptable.<sup>(12,13)</sup>

Study has shown that in a well organized screening program using VIA performed at 5-year intervals in women of ages 35-55 with immediate treatment if abnormalities are found was the least expensive option and saved the greatest number of lives, compared to other strategies such as Pap smear, HPV DNA testing, VIA and refer<sup>(14)</sup> (see Table 2).

**Table 1.** Performance and characteristics of different screening methods.\*

Screening tests	Sensitivity (%)	Specificity (%)	Characteristics
Pap smear: Conventional cytology	44-78	91-96	Requires adequate healthcare infrastructure; laboratory based; stringent training and quality control
VIA: visual inspection with acetic acid	66-79	49-86	Low technology; low cost; Linkage to immediate treatment possible; suitable for low-resource settings
HPV DNA testing	66-100	61-96	Laboratory-based; high throughput; objective, reproducible and robust; currently expensive

\*Modified from Cuzick J, et al. Vaccine 2008; 26(Suppl. 10): K29-41

**Table 2.** Costs and benefits of cervical cancer screening program by different methods in 35-55 year old women at 5-years intervals \*

Strategy	ICC Mortality reduction (%)	Cost (\$) per woman	Cost / 1% ICC Mortality reduction
Pap smear	13.5	25	\$1.85
VIA and immediate treatment	34.9	11	\$0.31
VIA and refer	12.3	7	\$0.57
HPV DNA testing	22.0	78	\$3.55

\*Modified from Mandelblatt J, et al. J Natl Cancer Inst 2002; 94: 1469-82. ICC = invasive cervical cancer.

### Cervical cancer prevention and control in Thailand:

Thailand is a developing country with limited resources, especially the number of pathologists and cyto-screening technicians. Prior to year 2000, with the opportunistic screening using Pap smear, the screening coverage in Thailand had been around 10%. Besides screening in the wrong target population, there were number of patients with positive tests did not receive appropriate management.<sup>(15)</sup> In year 2000, with the cooperation from Johns Hopkins Program for International Education in Gynecology and Obstetrics (JHPIEGO), the Royal Thai College of Obstetricians and Gynaecologists (RTCOG), Faculty of Medicine, Chulalongkorn University and Khon Khaen University, a “safety, acceptability, feasibility and program effort (SAFE)” demonstration project of a single visit approach (SVA) to cervical cancer prevention, using visual inspection with acetic acid (VIA) and cryotherapy was done in four districts of Roi-et province in the North-Eastern part of Thailand. About 6,000 women were screened. The conclusion of the study was that a SVA with VIA-cryotherapy performed by trained nurses, is safe, acceptable, and feasible in rural Thailand.<sup>(16,17)</sup> In 2006, after the withdrawal of external funding, the program was reevaluated and was found that the providers maintained a high level of competence and performance.<sup>(18)</sup>

The Thai Nursing Council, since 2002, has recognized, nurses who undergo through the 10-

days competency based training “Preinvasive Cervical Cancer Screening” course organized by Department of Health, Ministry of Public Health, to be able to perform VIA and cryotherapy.

In 2005, with the support from the National Health Security Office (NHSO), the National Cervical Cancer Prevention and Control Program was organized by the Ministry of Public Health. Its goal was to decrease the incidence of and mortality from cervical cancer by 50%, using Pap smear and VIA (with cryotherapy) –“Dual Track Strategy”– as screening tests performed at 5-years intervals. Target population was women age 30-60 years; VIA to be performed in women age 30-45 years which are the risk group to develop preinvasive cervical lesions. The aim was to cover 80% of the target population.<sup>(19,20)</sup> The program is still running at the present.

### Recommendation:

1. Training the trainers, training the providers and supervision after the training are utmost importance of the program. Quality assurance is needed to maintain effective services.
2. Keeping good record on clients, procedures done, and follow up all the clients periodically.
3. Having data on prevalence of the preinvasive lesions, and of cervical cancer in the area(s) is very important in evaluating the outcomes of the program.
4. Finding new strategy to increase the screening coverage in the area.

## Conclusion:

VIA is considered as an alternative measure of preinvasive cervical cancer screening. VIA linked to immediate cryotherapy in a single visit approach is an appropriate option for cervical cancer prevention and control program in low-resource settings where Pap smear could not be performed effectively.

## References

1. Srivatanakul P. Cervix uteri. In : Khuhaprema T, Srivatanakul P, Sriplung H, Wiangnon S, Sumitsawan Y, Attasara P, editors. Cancer in Thailand. Vol. IV, 1998-2000. Bangkok, Bangkok Medical Publisher 2007; p.51-3.
2. Ferlay J, Bray F, Pissani P, Parkin DM. GLOBOCAN 2002 cancer incidence. Mortality and prevalence worldwide. IARC Cancer Base. No. 5 version 2.0 Lyon: IARC Press; 2004.
3. Quinn M, Babb P, Jones J, Allen E. Effect of screening on the incidence of and mortality from cancer of cervix in England: evaluation based on routinely collected statistics. *BMJ* 1999;318:904-8.
4. The International Agency Research on Cancer (IARC). A practical manual on visual screening for cervical neoplasia. Lyon: IARC press, 2003.
5. Cuzick J, Arbyn M, Sankaranarayanan R, Tsu V, Ronco G, Mayrand MH, et al. Overview of human papillomavirus-based and other novel options for cervical cancer screening in developed and developing countries. *Vaccine* 2008;26(Suppl. 10): K29-41.
6. Blumenthal PD, Lauterbach M, Sellors JW, Sankaranarayanan R. Training for cervical cancer prevention programs in low-resource settings: focus on visual inspection with acetic acid and cryotherapy. *Int J Gynaecol Obstet* 2005;89(Suppl. 2): S30-7.
7. University of Zimbabwe/JHPIEGO Cervical Cancer Project. Visual inspection with acetic acid for cervical cancer screening: test qualities in a primary care setting. *Lancet* 1999;353:869-73.
8. Sankaranarayanan R, Basu P, Wesley RS, Mahe C, Keita N, Mbalawa CC, et al. Accuracy of visual screening for cervical neoplasia: Results from IARC multicenter study in India and Africa. *Int J Cancer* 2004;110:907-13.
9. Martin-Hirsch PL, Paraskevaidis E, Kitchener H. Surgery for cervical intraepithelial neoplasia (Cochrane reviews). In: The Cochrane Library, Issue 4, 2000. Oxford: Update Software.
10. Effectiveness, safety, and acceptability of cryotherapy: a systematic literature review. [http://www.path.org/files/RH\\_cryo\\_white\\_paper.pdf](http://www.path.org/files/RH_cryo_white_paper.pdf)
11. Mitchell MF, Tortolero-Luna G, Cook E, Whittaker L, Rhodes-Morris H, Silva E. A randomized clinical trial of cryotherapy, laser vaporization, and loop electrosurgical excision for treatment of squamous intraepithelial lesions of the cervix. *Obstet Gynecol* 1998;92:737-44.
12. Denny L, Kuhn L, De Souza M, Pollack AE, Dupree W, Wright TC Jr. Screen-and-treat approaches for cervical cancer prevention in low-resources settings: a randomized controlled trial. *JAMA* 2005;294:2173-81.
13. The Alliance for Cervical Cancer Prevention (ACCP). Cervical cancer Prevention Fact Sheet.(April 2008), <http://www.alliance-cxca.org/>
14. Mandelblatt J, Lawrence W, Gaffikin L, Limpahayom KK, Lumbiganon P, Warakamin S, et al. Costs and benefits of different strategies to screen for cervical cancer in less-developed countries. *J Natl Cancer Inst* 2002;94:1469-82.
15. Linasmita V. Cervical cancer screening in Thailand. FHI-satellite meeting on the prevention and early detection of cervical cancer in the Asia and Pacific region. Bangkok, Thailand. February 2006.
16. The Royal Thai College of Obstetricians and Gynecologists (RTCOG)/JHPIEGO Corporation Cervical Cancer Prevention Group (JCCCPG). Safety, acceptability and feasibility of a single-visit approach to cervical cancer prevention in rural Thailand: a demonstration project. *Lancet* 2003;361:814-20.
17. Chumworathayi B, Eamratsameekool W, Kularbkaew C, Chumworathayi P. Visual inspection with acetic acid test qualities in a secondary setting. *J Obstet Gynaecol Res* 2008;34:909-13.
18. Sanghvi H, Limpaphayom KK, Plotkin M, Charurat E, Kleine A, Lu E, et al. Cervical cancer screening using visual inspection with acetic acid: operational experiences from Ghana and Thailand. *Reprod Health Matters* 2008;16:67-77.
19. National Cancer Institute, Department of Medical Services, Ministry of Public Health. The appropriate cervical cancer prevention and control program in Thailand. In Srivatanakul P, Khuhaprema T, Deerasamee S, editors. The appropriate cervical cancer prevention and control program in Thailand. Rum Thai Press, Ltd., Bangkok 2005: page 1-10.
20. Chumworathayi B, Limpaphayom KK, Srisupundit S, Lumbiganon P. VIA and cryotherapy: doing what's best. *J Med Assoc Thai* 2006;88:1333-9.