

Cervical Cancer Prevention

Cervical cancer is increasing throughout the world. In economically-restricted countries, where early detection methods are not as widespread and reliable, deaths from cervical cancer are climbing. In order to reduce the number of new cases of cervical cancer, many family planning (FP) programs have focused their efforts on both prevention (mutual monogamy, condoms) and methods of detection. As a result, some programs now require a Pap smear before providing FP. This requirement, in some places, reduces a woman's access to FP.

The following pages summarize, in a question/answer format, research up to mid-1996 on cervical cancer, with a focus on causes, prevention and recommendations regarding FP method choice. Hopefully, this will help clarify how cervical cancer can be prevented. For more detailed information, please refer to:

- Sherris J, Wells E, Tsu V, Bishop A. Cervical cancer in developing countries: a situation analysis. A working paper. Washington DC: World Bank, 1993.
- Bishop A, Wells E, Sherris J, Tsu V, Crook B. Cervical cancer: evolving prevention strategies for developing countries. *Reproductive Health Matters* 1995; 6(November): 60-71.

Both of these publications are available from PATH, 4 Nickerson Street, Seattle, Washington 98109-1699 USA, Telephone: (206) 285-3500, Fax: (206) 285-6619, e-mail: info@path.org.

This information responds to requests for answers to questions about cervical cancer prevention. This chapter is also being published as an INTRAH Technical Information Memo Series (TIMS). For copies of INTRAH TIMS, please contact:

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Q.1. Why is cervical cancer an important women's reproductive health issue?

Answer	Rationale
a) Squamous cell cervical cancer is the most common cancer in women in the developing world.	a) Each year, half a million cases are diagnosed. <ol style="list-style-type: none">1) Manos M. Cervical cancer as a sexually transmitted disease. Report of Emerging Issues in Reproductive Health Meeting. Tiberon CA, The Population Council, June 15, 1995.2) Parkin DM, Pisani P, Ferlay J. Estimates of the worldwide incidence of 18 major cancers in 1985. International Journal of Cancer 1993;54:594-606.
b) The number of cases of cervical cancer in developing countries is likely to increase significantly.	b) As populations age, as the number of human papilloma virus (HPV)-infected women increase and as the number of women with human immunodeficiency virus (HIV)-related immunosuppression increases during the coming decades, the number of women with cervical cancer is likely to increase. HIV increases susceptibility to cervical cancer and pre-cancer. <ol style="list-style-type: none">1) Bishop A, Wells E, Sherris J, Tsu V, Crook B. Cervical cancer: evolving prevention strategies for developing countries. Reproductive Health Matters 1995;6(November):60-71.
c) Cervical cancer is deadly .	c) An estimated 203,000 women die annually. <ol style="list-style-type: none">1) Kingman S. Human Papilloma virus vaccine tested in cervical cancer. The Journal of NIH Research, 1995.

Q.2. What causes most cases of cervical cancer?

Answer	Rationale
<p>a) Human Papilloma virus (HPV), a sexually-transmitted disease, is responsible for more than 90% of cervical cancer cases. However, not all women infected with HPV will develop cervical cancer.</p> <p>b) Consequently, behaviors which put a woman at risk for sexually transmitted diseases also put her at risk for HPV and therefore, cervical cancer. Behaviors which increase the chance of becoming infected with HPV are:</p> <ul style="list-style-type: none">● having intercourse with many different partners or having intercourse with a person who has intercourse with many different partners;● beginning to have intercourse at an early age or having a first pregnancy at an early age (before 20 years old);● and not using barrier methods.	<p>a) Evidence suggests that, with refined laboratory techniques, all cervical cancer tumors will be found to contain HPV. However, of over 70 types of HPV, only 16 are moderately to strongly associated with cervical cancer risk. Four types account for 75% of cancers.</p> <ol style="list-style-type: none">1) Bosch FX, Manos MM, Munoz N, Sherman M, Jansen AM, Peto J, et al. Prevalence of Human Papillomavirus in cervical cancer: a worldwide perspective. <i>Journal of the National Cancer Institute</i> 1995;87(11):796-802.2) Shah K, Howley PM. Papillomaviruses. In: Fields BN, Knipe DM, Howley PM, et al (eds) <i>Field's Virology</i>, 3rd ed. Philadelphia: Lippincott Raven Publishers, 1996, pp. 2077-101. <p>b) Research on each risk behavior is discussed below.</p> <ul style="list-style-type: none">● Studies have found a linear relationship between the number of sexual partners a woman has and her chance of having an HPV infection; as well as between male sexual behaviors and the rates of HPV infection in women in those populations.● Studies have found that young age of first intercourse or pregnancy increases the risk of cervical cancer. The cells on the cervix change rapidly during adolescence, which may make the cells more vulnerable.● Because condoms do not cover the vulva, introitus or scrotum, they cannot offer complete protection. However, use of barrier methods has been associated with a reduced risk of cervical cancer. <ol style="list-style-type: none">1) Coker AL, Hulka BS, McCann MF, Walton LA. Barrier methods and cervical intraepithelial neoplasia. <i>Contraception</i> 1992;45(1):1-10.2) Manos M. Cervical cancer as a sexually transmitted disease. Report of Emerging Issues in Reproductive Health Meeting, June 15, 1995. Tiburon CA, The Population Council.

Answer	Rationale
c) Another behavior which increases a woman's risk of cervical cancer is smoking.	c) Cigarette smoking doubles a smoker's risk of cervical cancer in comparison with a nonsmoker. 1) Winklestein W. Smoking and cervical cancer — current status: a review. American Journal of Epidemiology 1990;131(6):945-57.
d) High number of pregnancies or live births may increase a woman's risk of cervical cancer.	d) Several studies have found a high number of pregnancies or live births to be a strong and important risk factor in cervical cancer (independent of HPV infection). However, this association is not well understood and is currently under investigation. 1) Brinton LA, Hamman RF, Huggins GR, Lehman HF, Levine RS, Mallin K, et al. Sexual and reproductive risk factors for invasive squamous cell cervical cancer. Journal of the National Cancer Institute 1987;79:23-30. 2) Schiffman MH, Bauer HM, Hoover RN, Glass AG, Cadell DM, Rush BB, et al. Epidemiologic evidence showing that human papillomavirus infection causes most cervical intraepithelial neoplasia. Journal of the National Cancer Institute 1993;85:958-64. 3) Madeleine M, Schwartz S, Daling J. Risk factors for cervical cancer in young women by histologic type (abstract). American Journal of Epidemiology 1996;143(11 Suppl):S84.

Q.3. How can deaths attributed to cervical cancer be prevented?

Answer	Rationale
<p>Cervical cancer is the most preventable form of major cancer worldwide. The two public health strategies are:</p> <p>a) Primary prevention, or keeping women from developing the disease. Cervical cancer is mostly caused by behaviors connected to life style. Therefore, priorities should focus on changing behavior, promoting barrier methods, discouraging smoking and helping women have the number of pregnancies they want.</p>	<p>a) Preventing the transmission of Human Papilloma virus (HPV) will require information, education and communication strategies that raise awareness among both men and women of the risk of HPV infection due to unprotected sexual intercourse, especially with multiple partners. Additionally, because only a few HPV types are strongly associated with cervical cancer, researchers are examining the benefits of developing a HPV vaccine.</p> <ol style="list-style-type: none">1) Ponten J, Adami HO, Bergstrom R, Dillner J, Friberg LG, Gustafsson L, et al. Strategies for global control of cervical cancer. <i>International Journal of Cancer</i> 1995;60:1-26.2) Manos M. Cervical cancer as a sexually transmitted disease. Report of Emerging Issues in Reproductive Health Meeting, June 15, 1995. Tiberon CA, The Population Council.

Answer	Rationale
<p>b) Secondary prevention, or screening women who may have pre-cancerous lesions and treating them. Currently, screening with appropriate follow-up care is not widely available or economically feasible in many countries or settings.</p>	<p>b) On average, it takes about 10 years for pre-cancerous lesions to develop into cervical cancer. Most cervical cancer occurs in women over the age of 35. If detected early, there is a 95% success rate for treatment. However, screening is only useful in preventing cervical cancer deaths if appropriate medical follow-up services are available.</p> <p>The most common screening method used is the Pap smear. Providing Pap smears requires significant infrastructure. Without this, Pap smears are often poorly prepared and improperly interpreted. However, because it is still the best method for diagnosis if properly conducted, efforts are being made to improve Pap smear availability and interpretation.</p> <p>Other approaches to screening, including methods for enhanced visual inspection of the cervix and HPV detection, are being studied and refined now. These approaches may prove more useful and especially appropriate for economically restricted countries. Where resources are scarce, screening methods will be more effective in preventing cervical cancer deaths if they target women at high risk (e.g., over the age of 35).</p> <p>1) Bishop A, Wells E, Sherris J, Tsu V, Crook B. Cervical cancer: evolving prevention strategies for developing countries. <i>Reproductive Health Matters</i> 1995;6(November):60-71.</p>

Q.4. Has the use of family planning methods been shown to increase the risk of cervical cancer?

Answer	Rationale
<p>a) Barrier methods of contraception help to decrease the risk of cervical cancer.</p> <p>b) Intrauterine devices (IUDs) and tubal ligation do not increase the risk.</p> <p>c) There remains concern that hormonal contraceptives are associated with a low level increased squamous cervical cancer risk. (There is stronger evidence for a relationship between oral contraceptives (OCs) and adenocarcinoma, a more rare form of cervical cancer than the squamous cell cancer.)</p>	<p>a) In several studies, women reporting use of barrier methods (including condoms) appear to have a lower risk of cervical cancer. These findings have not been found in all studies, however. If cervical cancer is caused by a sexually transmitted disease (STD) such as HPV, it is plausible that barrier use will protect a woman from cervical cancer or pre-cancer, but she would need to use the barrier method whenever engaging in intercourse.</p> <p>b) Research has not found IUDs or tubal ligation to increase cervical cancer risk in comparison to using no method.</p> <p>c) Some researchers believe that long-term combined oral contraceptive (COC) use (beyond five years) may be associated with a slight increased risk of cervical cancer. Other researchers disagree, saying that this association may not be due to COCs, but may result if COC users receive better medical care and more frequent screening (screening biases), are not using barrier methods, are having more sexual partners, are initiating intercourse at an earlier age, or a number of other factors. Additionally, because COCs may increase cervical ectopy, it may be easier to get a positive Pap smear from a COC user.</p> <ol style="list-style-type: none"> 1) Feldblum P, Joanis C. Modern barrier methods: effective contraception and disease prevention. Durham, NC: Family Health International, 1994, p 24. 2) La Vecchia C. Depot-medroxyprogesterone acetate, other injectable contraceptives, and cervical neoplasia. <i>Contraception</i> 1994;49:223-30. 3) Schlesselman JJ. Net effect of oral contraceptive use on the risk of cancer in women in the United States. <i>Obstetrics and Gynecology</i> 1995;85(5 pt 1):793-801. 4) Swan S, Petitti D. A review of problems of bias and confounding in epidemiologic studies of cervical neoplasia and oral contraceptive use. <i>American Journal of Epidemiology</i> 1982;115(1):10-8. 5) Thomas DB, Ray RM. Depot-medroxyprogesterone acetate (DMPA) and risk of invasive adenocarcinomas and adenosquamous carcinomas of the uterine cervix. <i>Contraception</i> 1995;52(5):307-12. 6) World Health Organization. Improving access to quality care in family planning: eligibility criteria for contraceptive use. Geneva: WHO, 1996. 7) WHO. Invasive squamous cell carcinoma and combined oral contraceptives: results from a multi-national study. <i>International Journal of Cancer</i> 1993;55:228-36.

Q.5. Is a Pap smear needed before beginning any Family Planning (FP) method? Should use be discontinued if a client develops cervical cancer while using any method?

Answer	Rationale
No. A Pap smear is not needed before beginning any method, nor should use of any family planning method be discontinued if a client develops cervical cancer.	<p>Although cervical cancer screening with appropriate follow-up is a good preventive health measure where economically feasible, this is not a requirement for family planning use. Furthermore, some people use the Pap smear as a proxy screening test for clinically-inapparent cervical infection. Because of its low sensitivity and specificity for detecting infection, and high cost, sexually transmitted disease risk should be assessed by history and clinical exam of the cervix instead of by Pap smear. Access to family planning should not be restricted as a means to promote screening.</p>
	<p>Clients with cervical pre-cancer can continue using their contraceptive method. Patients with true cervical cancer will not require contraception if treated by radical surgery or radiation therapy. While there is a theoretical concern that combined oral contraceptive (COC) use may affect the progression of the existing disease, women with cervical cancer may continue to use COCs or any other contraceptive method while awaiting treatment. Due to risk of infection or perforation, an intrauterine device (IUD) should not be inserted in a woman who has already been diagnosed with cervical cancer.</p>
	<p>1) World Health Organization. Improving access to quality care in family planning: eligibility criteria for contraceptive use. Geneva: WHO, 1996.</p>