

## **Cervical Cancer: Global Burden, Treatment, and Challenges to Developing Countries**

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HPV is a very common, largely sexually transmitted infection which in the majority of cases is transient, asymptomatic, and clinically insignificant. In some women, however, the infection becomes persistent and may lead to the development of cervical cancer while largely remaining asymptomatic in males. The most effective way of preventing this cancer is two-fold. Vaccinations for serotypes most commonly related to cancer are available as well as cytology-based screening programs, and where implemented, these screenings have dramatically reduced the incidence of cervical cancer. Today cervical cancer is most prevalent in areas where no effective screening has been established. This mostly occurs in the developing world where lack of resources and medical infrastructure prevents successful screening activity.<sup>1</sup> Worldwide, an estimated 400,000 women develop cervical cancer each year. The disproportionate impact of cervical cancer morbidity and mortality in developing countries is enormous, with less than 5% of women receiving screenings. Almost 80% of all cervical cancer cases occur in these developing countries. The areas of greatest incidence include sub-Saharan Africa, Latin America, Caribbean, and Southern Asia. In countries with organized screening programs the development of invasive cancer has been reduced greatly, however, these programs have been difficult to replicate in low-resource settings. Even in the United States, there are well-documented differences in cervical cancer mortality among women who are older, poor, or from select minorities.<sup>2</sup>

In 2002 a study was completed in Latin America and the Caribbean that showed cervical cancer being the second deadliest cancer among women (after breast cancer). 72,000 new cases were found and 33,000 deaths were caused by cervical cancer alone in 2002.<sup>3</sup> Among women in sub-Saharan Africa, cervical cancer is the most common cancer and knowledge about the disease is still very poor. Because cervical cancer is preventable and treatable, and when left untreated, women suffer extraordinarily, it is necessary for African governments to treat it with the same

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1 Denny, Lynette. Prevention of Cervical Cancer. *Reproductive Health Matters*. 2008;16(32):18-31.

2 Goldie, Sue J. Health economics and cervical cancer prevention: a global perspective. *Virus Research*. 2002;(89): 301-309.

3 Parkin, D. Maxwell, Almonte, Maribel, Bruni, Laia, et al. Burden and Trends of Type-Specific Human Papillomavirus Infections and Related Diseases in the Latin America and Caribbean Region. *Vaccine*. 2008;(26S): L1-L15.

priority as HIV, malaria, and childhood immunizations. About 60-75% of women in sub-Saharan Africa who develop cervical cancer live in rural areas, and mortality is very high. Most of these cases go untreated due to lack of access to care, both financially and geographically. Unfortunately, cervical cancer affects women at a time in their life when they are critical to the stability of their families. The survival rate of cervical cancer for sub-Saharan Africa in 2002 was 21%, compared with 70% in the United States and 66% in Western Europe.

**Table 1. Cancer of the uterine cervix, incident cases, deaths, age-standardised incidence and mortality rates, 2002** (adapted from sources)<sup>2,6</sup>

	North America	Western Europe	South America	South Central Asia	Eastern Africa	Southern Africa	Western Africa	Middle Africa	Northern Africa
Cases in 2002	14,600	12,700	48,300	157,700	33,900	7,600	20,900	8,200	8,100
Deaths in 2002	5,700	5,600	21,400	86,700	27,100	4,400	16,700	6,600	6,500
Age-standardised incidence /100,000	7.7	10.0	28.6	26.2	42.7	38.2	29.3	28.0	12.1
Age-standardised mortality/100,000	2.3	3.6	12.9	15.0	34.6	22.6	23.8	23.0	9.8

\*Source: Anorlu, Rose I. Cervical Cancer: The sub-Saharan African Perspective, *Reproductive Health Matters*. 2008;16(32):41–49.

In sub-Saharan Africa, the causes of high mortality rates are associated with poor access to medical facilities, poor nutrition, late presentation with the disease, poor quality care, low rate of follow-up, and women not completing treatment due to rural barriers. Cultural factors also play a role in the rates of cervical cancer including: early marriage, polygamous marriage, and high parity which factors are present and afflict women and girls living in rural areas at much greater rates.

Cervical cancer is yet to be seen as an important public health concern in Africa. In 2004, 81.7% (of 139 women) of advanced cervical cancer patients at a clinic in Lagos had never heard of the disease before and 98% believed that their advanced disease was curable. Poor knowledge is not limited to patients alone; health care workers have no more knowledge of the disease than their patients.<sup>4</sup> A study done by International Agency for Research on Cancer

4 Anorlu, Rose I. Cervical Cancer: The sub-Saharan African Perspective, *Reproductive Health Matters*.

(IARC) recently discovered that HPV prevalence in women with normal cytology is approximately five times higher in sub-Saharan Africa than in Europe.

It is extremely difficult to screen women in sub-Saharan Africa for cervical cancer. Less than 1% of women in four West African nations had ever been screened. Even women who do have access to screenings rarely take the opportunity because they are not knowledgeable on the importance of such tests. Those who do get screenings are rarely in the high-risk group of rural women aged 35-60.

The difficulty of making cervical cancer screenings available to the majority of women in sub-Saharan Africa is one of methods and resources. The current cytology-based screening technique that is used in developed countries is resource intensive, and difficult to realize in many African countries due to poor healthcare infrastructure and lack of resources. There are also very few professionals who are able to administer this type of screening successfully. Because of the lack of available screenings, most cervical cancer cases in sub-Saharan Africa are at the advanced stages. The management of invasive cancer continues to be an obstacle in most African countries, with most of the health centers located in urban areas. For those cases that present in the operable stage, there are very few certified gynecologists who perform radical gynecological cancer surgery. Radiotherapy is used for those who present later, but treatment is similarly hard to come by. In 2003, 15 countries in Africa did not have a single radiotherapy machine, and in contrast, the United States has 12 machines per million people.<sup>5</sup>

Vaccines are also becoming more common in the prevention of HPV. It is estimated that vaccinating against types HPV 16 and 18 would prevent approximately 70% of cervical cancer cases, while vaccinating against the eight most common types would prevent an estimated 95% of the cases. Although vaccines would make a great impact on cervical cancer cases, it would still be difficult to reach those women who are at the highest risk in the rural areas of developing countries. The vaccine requires a series of three injections at different time intervals. This process would prove very difficult in areas like sub-Saharan Africa. School-based programs could potentially provide one way to reach a large amount of young women, however, in many developing countries a large proportion of children never begin school.<sup>6</sup> It is apparent that areas

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2008;16(32):41–49.

5 Anorlu, Rose I. Cervical Cancer: The sub-Sahara African Perspective, *Reproductive Health Matters*. 2008;16(32):41–49.

6 Biddlecom, Ann, Bankole, Akinrinola, Patterson, Kate. Vaccine for cervical cancer: reaching adolescents in sub-

of the developing world who are in the most need of cervical cancer prevention are not getting sufficient treatment. Much more research is needed in order to develop unique methods to best meet the needs of these women. Women's World Health Initiative is currently engaged in developing innovations that will offer screenings and treatment for women who would otherwise find themselves suffering and dying from this preventable and treatable disease.