

Preventing Cervical Cancer in the Developing World

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The Pap smear has transformed cervical cancer from a leading killer to a rare disease in the United States. But few countries have the resources and infrastructure necessary to run organized screening programs, so the poorest regions of the world bear the brunt of this disease.

Most women in low-income countries do not have access to routine screening: only 5 percent have undergone a Pap smear in the past five years.¹ In parts of Latin America and the Caribbean, more women die from cervical cancer than from complications of childbirth. Recently, several countries, including China, Costa Rica, and India, have begun campaigns to combat cervical cancer, introducing low-cost screening techniques such as visual inspection with acetic acid or iodine. With these techniques, precancerous cells temporarily change color, enabling practitioners to identify and treat abnormal lesions in a single visit, thus minimizing loss to follow-up. Some of these countries are also investigating a blood test for human papillomavirus (HPV)

to identify high-risk strains that lead to cervical cancer.

When screening is available to women of all ages, it has a major impact. In the United States, rates of cervical cancer have fallen by 75 percent since the Pap smear's introduction more than 40 years ago. Prevention efforts targeting only young women have had limited success, however, since cervical cancer predominantly affects older women. In Mexico, a nationwide screening initiative failed to reduce mortality rates, in part because young women in urban areas were screened repeatedly, whereas many older women had no access to testing.² One study suggested that the lifetime risk of cervical cancer is reduced by 25 to 35 percent if women over 35 undergo a single screening by means of either visual inspection with acetic acid or HPV testing and precancerous lesions are treated. In many regions, however, gynecologic examinations remain deeply stigmatized. In South Africa, for example, pelvic exams are often referred to as "surrendering oneself."

The introduction of the HPV vac-

cine may assist prevention campaigns by reducing the spread of high-risk strains of the virus (HPV types 16 and 18). Although there appears to be regional heterogeneity in the prevalence of high-risk types, many still hope that the HPV vaccine will revolutionize cervical-cancer prevention programs.³ Unfortunately, the women who are most in need may have the hardest time getting vaccinated, since the vaccine, at an estimated \$300 to \$500 per course, may be too expensive for many developing countries.

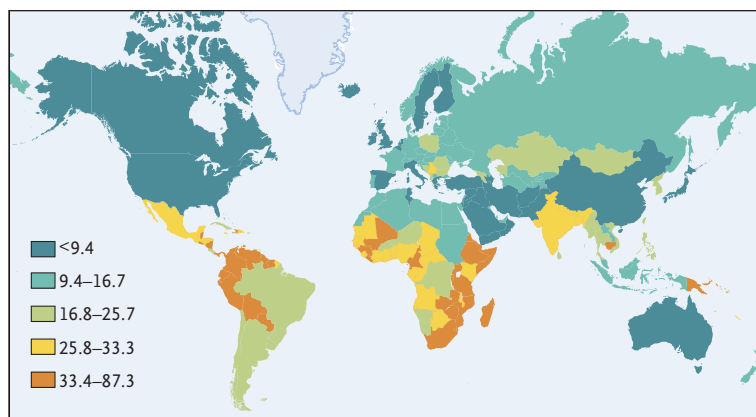
In addition to cost, there is the worry that the vaccine could have a negative effect on screening — offering false security to vaccinated women, who may incorrectly believe that they no longer need to undergo Pap smears. Although future prevention efforts may focus on optimizing the HPV vaccine or developing targeted molecular tests to prevent the spread of the virus, most experts believe that these advances will not make screening tools obsolete, since millions of women have already been exposed to HPV. Instead, they argue, it will be crucial to make simplified screening and widespread vaccination the new standard of care.

Drs. Katz and Wright are editorial fellows at the *Journal*.

1. Population Reference Bureau, PATH. Preventing cervical cancer worldwide. 2004. (Accessed February 28, 2006, at http://www.path.org/files/RH_prp-accp_cervical_cancer_worldw.pdf.)

2. Lazcano-Ponce EC, Moss S, Alonso de Ruiz P, Salmeron Castro J, Hernandez Avila M. Cervical cancer screening in developing countries: why is it ineffective? The case of Mexico. *Arch Med Res* 1999;30:240-50.

3. Clifford GM, Gallus S, Herrero R, et al. Worldwide distribution of human papillomavirus types in cytologically normal women in the International Agency for Research on Cancer HPV prevalence surveys: a pooled analysis. *Lancet* 2005;366: 991-8.



Age-Standardized Incidence Rates of Cervical Cancer per 100,000.

Adapted from GLOBOCAN 2002, International Agency for Research on Cancer, Lyon, France, 2004 (www-dep.iarc.fr).