

4. Winer RL, Lee SK, Hughes JP, Adam DE, Kiviat NB, Koutsky LA. Genital human papillomavirus infection: incidence and risk factors in a cohort of female university students. *Am J Epidemiol* 2003;157:218-226. PMID:12543621 doi:10.1093/aje/kwf180
5. Ho GYF, Bierman R, Beardsley L, Chang CJ, Burk RD. Natural history of cervical human papillomavirus infection in young women. *N Engl J Med* 1998;338:423-8. PMID:9459645 doi:10.1056/NEJM199802123380703
6. Dunne EF, Unger ER, Sternberg M, McQuillan G, Swan DC, Patel SS, et al. Prevalence of HPV infection among females in the United States. *JAMA* 2007;297:813-9. PMID:17327523 doi:10.1001/jama.297.8.813
7. Zimmerman RK. Ethical analysis of HPV vaccine policy options. *Vaccine* 2006;24:4812-20. PMID:16603278 doi:10.1016/j.vaccine.2006.03.019
8. Shepherd J, Peersman G, Weston R, Napuli I. Cervical cancer and sexual lifestyle: a systematic review of health education interventions targeted at women. *Health Educ Res* 2000;15:681-94. PMID:11142076 doi:10.1093/her/15.6.681
9. Bakuski EA, Kungu D, Duerr A, Tevi-Benissan C, Sunderam M, Cohen CR. Acceptability of the diaphragm among women at risk for sexually transmitted diseases in Nairobi, Kenya [Abstract no. MoPeD3658Int]. *Int Conf AIDS, 7-12 July 2002*.
10. Van Der Straten A, Mi Suk Kang, Posner S, Kamba M, Chipato T, Padian N. Predictors of diaphragm use as a potential sexually transmitted disease/HIV prevention method in Zimbabwe. *Sex Transm Dis* 2005;32:64-71. PMID:15614123 doi:10.1097/01.olq.0000148301.90343.3a

Cervical cancer prevention and the Millennium Development Goals

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Cervical cancer, a complication of HPV infection, is the second most common cancer in women, with 500 000 new cases each year worldwide, 80% of which occur in low-resource countries in Africa, Latin America and south-east Asia. More than half of women with cervical cancer will die, with deaths projected to rise by almost 25% over the next 10 years according to WHO.¹ In Europe and the United States of America, a woman has a 70% chance of surviving cervical cancer whereas the chance of survival is only 58% in Thailand, 42% in India, and 21% in sub-Saharan Africa.¹ In low-resource countries, only 41% of women with cervical cancer have access to appropriate treatment.¹ Now that immunization against HPV is available, will it meet its expectations?

In medically advanced countries, about 30–40% of women do not comply with available cervical cancer screening.² Whether these women will encourage their teenage daughters to have the HPV vaccine is questionable and depends strongly on health insurance coverage. In addition, immunization against the carcinogenic HPV strains 16 and 18 only prevents 70% of cervical cancers.³ Therefore, it does not exempt women from further regular cervical screening when also considering that the duration and optimal protection of the initial immunization is unknown and that boys are not yet included in the immunization programme.⁴

In low-resource countries where cervical cancer screening programmes and treatments are scarce or absent, HPV vaccine raises considerable expectations, but just as many objections. HPV subtypes vary between regions in the world and the strains targeted by the currently marketed vaccines may not prevail in low-resource countries where no extensive epidemiologic study of HPV-typing has been conducted. A full immunization procedure, three shots over six months, is expected to cost US\$ 360.¹ Such a cost is unaffordable for the one billion individuals living on less than US\$ 1 per day, unless the vaccine is distributed by state-subsidized programmes. Health authorities in low-resource countries, already overwhelmed with public health demands, will have to set priorities when allocating limited resources. The same painful choices are now imposed on international agencies and private foundations with the advent of the HPV vaccine, which puts an additional burden on their available funding. Equity requires dividing the means according to the needs, provided a hierarchy can be established among those needs. Given the HIV epidemic, the devastation caused by malaria or tuberculosis, maternal mortality that is responsible for twice as many women's deaths as cervical cancer, and the four million infants dying each year of avoidable disease, it is likely that the HPV vaccine will be given a low priority. Furthermore, considering that famine is endemic in at least 37 countries, urgent wheat, rice and millet provision competes with the supply of vital drugs. The World Trade Organization and WHO compete in spreading their endeavours with shrinking funds. If the Monterrey consensus (which was the outcome of the United Nations International Conference on Financing for Development in 2002)⁵ pledge that urged developed countries to divert 0.7% of gross national product to worse-off populations is not fulfilled, it is very likely that the 2015 MDGs will trail away, regrettably cervical cancer prevention above all. ■

References

1. Johnson TRB, Adanu RMK. Contemporary issues in women's health. The new HPV vaccine- not quite time to celebrate. *Int J Gynaecol Obstet* 2007;97:86-8. doi:10.1016/j.ijgo.2007.02.004
2. Milliez J. Non surgical prevention of cancer of the uterine cervix. *Bull Acad Natl Med* 1997;181:1415-31. PMID:9528185
3. Brun JL, Riethmuller D. Prophylactic and therapeutic vaccination against papilloma virus. *J Gynecol Obstet Biol Reprod (Paris)* 2007;36:631-41. PMID:17822860
4. Hammoud M. HPV vaccine: not immune to controversy. *Int J Gynaecol Obstet* 2008;101:123-4. PMID:18299132 doi:10.1016/j.ijgo.2008.01.009
5. International conference on financing for development. Monterrey, Mexico. March 2002. Available from: <http://www.un.org/french/ffd/pressrel/22apress.htm> [accessed on 16 May 2008].

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