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# Worldwide distribution of cervical cancer virus is consistent with vaccine targets

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The variety of human papilloma viruses that cause invasive cervical cancer cases worldwide are largely consistent across continents, according to a new study from the University of North Carolina at Chapel Hill.

This finding means that prophylactic vaccines currently available against these two most prevalent types of human papillomavirus (HPV) – which can cause cervical cancer – could prevent about 70 percent of invasive cervical cancer (ICC) cases around the world, the researchers found.

“Our data confirm that HPV types 16 and 18 are the most common in invasive cancer and strengthen the data on the estimated number of cases that could be prevented with vaccination,” said lead study author Jennifer Smith, Ph.D., a research assistant professor of epidemiology in the UNC School of Public Health and a member of the UNC Lineberger Comprehensive Cancer Center. “As a result of this analysis, we now have additional information about other high-risk HPV types that cause invasive cancer to target for future HPV vaccine development.”

The results were published in the Aug. 1, 2007, issue of the *International Journal of Cancer*.

HPV is a sexually transmitted virus that can cause high-grade cervical lesions, increasing a woman’s risk of developing invasive cervical cancer. There are approximately 14 high-risk types of HPV that cause invasive cervical cancer, Smith explains. The two most common types are 16 and

18, named for their genetic patterns. These virus types are responsible for about 70 percent of invasive cervical cancer and 50 percent of high-grade lesions worldwide, the study shows.

To estimate the prevalence of different virus types in cancer, the researchers conducted a meta-analysis of data on the distribution of HPV infection in more than 14,000 invasive and 7,000 high-grade cases throughout the world. A meta-analysis combines statistics from smaller studies to develop information with greater statistical significance.

The scientists reported that ICC HPV16 was the most common, and HPV18 the second most-common type in all continents. Combined HPV 16/18 prevalence among ICC cases was slightly higher in Europe, North America and Australia, from 74 to 77 percent, than in Africa, Asia and South/Central America, where the rates were between 65 and 70 percent. Data on HPV-typed ICC and high-grade lesions were particularly scarce from large regions of Africa and Central Asia.

Gardasil, a Merck & Co. vaccine approved last year by the Food and Drug Administration, protects against HPV 16 and 18. A similar vaccine developed by GlaxoSmithKline also protects against these types of HPV.

“While having these vaccines represents a significant step forward, HPV-vaccinated women will need to receive clear messages that they still need to obtain their recommended Pap smears for cervical cancer prevention, given that HPV vaccines will not prevent all invasive cancer or high-grade lesions,” Smith said.

Source: University of North Carolina at Chapel Hill