

Determinants of High-Risk Human Papillomavirus (HPV) Persistence in Female College Students

Cervical cancer, caused by high-risk HPV, takes lives in South Carolina at a higher rate than the



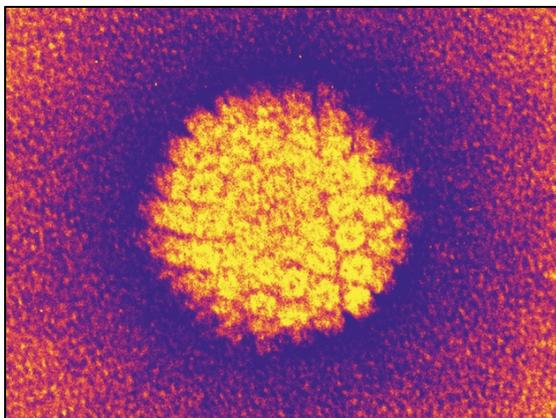
national average and black women are about twice as likely to die of cervical cancer as white women. Worldwide, cervical cancer is the second most common cause of cancer mortality in women. The Carolina Women’s Care Study, funded by the National Institute on Minority Health and Health Disparities, tried to determine why black women are at higher risk for cervical cancer. According to the study, HPV infection tends to

lasts longer in college-aged black women than whites, possibly setting them up for a higher risk of cervical cancer. The researchers also found that black women are about 60 percent more likely to have an abnormal Pap test -- a screening test for cervical cancer -- than their white counterparts.

In a seven-year study of risk factors for persistent high-risk HPV infection in young women, researchers investigated specific factors – genetic, molecular, and lifestyle-related – that will determine who will most likely be at risk for cervical cancer and why. The study showed that HPV infection lasted longer in young black women than in white women. Through collaboration with Claflin University and USC’s Institute for Partnerships to Eliminate Health Disparities, the study was the first in the state to investigate the natural history of HPV infection in women of college age in South Carolina.



The study, directed by **Kim E. Creek**, PhD, Vice-Chairman and Professor, Department of Drug Discovery and Biomedical Sciences, SC College of Pharmacy, and his wife, Lucia Pirisi-Creek, MD, professor of Pathology, Microbiology & Immunology at the USC School of Medicine, enrolled and followed 467 women at the University of South Carolina over their college experience. HPV status was evaluated every six months in Pap test samples from 326 white women and 113 black women. *“Three HPV positive Pap tests in succession meant those women had persistent HPV infection, and therefore they may ultimately be at higher risk for developing cervical cancer,”* explains Creek.



According to Creek, an investigator with over 20 years’ experience exploring the cellular and molecular changes caused by HPV, most HPV infections are transient. *“If you are infected, your body recognizes it as a viral infection and usually clears the virus within one or two years,”* he said. *“It is those women who have difficulty clearing HPV that are at higher risk of cervical disease and*

cervical cancer." Creek, who was the recipient of the University of South Carolina Education Foundation Research Award in 2014, was also recently named one of the winners of the prestigious 2014 USC Breakthrough Leadership in Research Award. The Breakthrough



Leadership in Research award recognizes outstanding contributions and sustained leadership in research. Creek was one of eight Carolina faculty members to be honored for exemplary work.

Blacks in South Carolina experience a much greater burden of cancer in general, and in particular mortality rates for colon, breast, head and neck, cervical and prostate cancer are higher than those in white patients. *"While some of these disparities have been attributed to access to health care, there is a growing body of evidence that points to biological differences that may account at least in part for these disparities. These biological differences could also result in differences in responses to chemotherapy,"* says Creek, who co-leads an NIH- funded Center grant that addresses health disparities in HIV-AIDS and HPV.



Not actual patients

Exactly why black women have more difficulty clearing HPV is not known. *"We think that it likely has something to do with the immune system,"* Creek said. Lifestyle factors and genetic differences may also play a role. *"We will try to understand why this occurs because if we could understand the reason for the difference in HPV clearance, we could make appropriate public health recommendations,"* Creek added. *A long term goal of our research is to identify potential biological markers of HPV persistence that could ultimately identify among HPV positive women, those at greatest risk to develop cervical cancer.*