

New evidence on why young women in South Africa are at high risk of HIV infection

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Evidence by the Centre for the AIDS Programme of Research in South Africa (CAPRISA) consortium of South African and North American researchers will be presented on July 18 at the International AIDS 2016 Conference in Durban, shedding new light on why young women in South Africa have high rates of HIV infection. Dr. Salim Abdool-Karim, professor of Epidemiology at Columbia University's Mailman School of Public Health and director of CAPRISA, led the research team. The Mailman School was also among the North American institutions providing research support.

In a study of 9,812 individuals, the genetic code of HIV from each of 1,589 HIV-positive people was analyzed to better understand the relentless spread of HIV in a rural and urban community in South Africa. It revealed a "cycle of HIV transmission" driven by high rates of new HIV infections in adolescent girls and young women from men, on average 8 years older. Many of these men were also partners of similarly aged women who have HIV prevalence rates exceeding 60%.

In a second study investigating the genetic codes of vaginal bacteria of 120 South African women, those with an overgrowth of *Prevotella bivia* had an almost 20 times higher chance of acquiring HIV than those low levels or absence of this vaginal bacterium. Further, it was found that *Prevotella bivia* may be increasing women's vulnerability to HIV by inflammation in the vagina through its release of "lipopolysaccharide" (LPS), a well-known immuno-stimulatory molecule in HIV infection.

In the third study, an analysis of 3,334 genital bacterial proteins from 688 women showed that the three out of five women who had a "healthy" lactobacillus dominant vagina showed that tenofovir gel preexposure prophylaxis was effective in preventing HIV, while the women who did not have lactobacillus dominance, showed little benefit from the gel. Follow up laboratory studies

showed that *Gardnerella vaginalis*, which predominates in the vagina when lactobacillus levels are low, absorbs tenofovir thereby reducing the availability of the drug to prevent HIV infection.

"Reducing new HIV infections in young women is one of the greatest challenges in southern Africa," commented Dr. Abdool Karim. "Based on our results, implementing a combination of evidence-based targeted interventions to break the cycle of HIV transmission while effectively treating bacterial vaginosis could enhance HIV prevention in women in the highest HIV-burden region of the world."

The three studies provide scientific evidence, using state-of-the-art research technologies, to guide targeted HIV prevention interventions to break the cycle of HIV transmission and impact the course for HIV in South Africa and potentially in other high burden settings. Since the *Prevotella* and *Gardnerella* bacteria raise the vaginal pH, a readily available, quick, simple and cheap test can be used to ascertain which women require treatment for bacterial vaginosis, an imbalance in the vaginal bacteria. Combined, these interventions could have a significant impact on the spread of HIV in women in South Africa and beyond.

Dr Margaret Chan, Director-General, World Health Organization, commented that, "Young women in Africa have missed out while others have benefitted from global progress against AIDS. The new studies point the way to HIV prevention opportunities that can help rectify this imbalance."

"The new evidence from the UNAIDS Collaborating Centre - CAPRISA takes us closer to understanding the very [high rates](#) of HIV among young women and adolescent girls in southern Africa" said Michel Sidibé, the Executive Director of UNAIDS. "We cannot leave women and girls behind in this Fast-Track response—in addition to scaling up the options we have, effective new tools are required urgently to meet their HIV prevention

needs if we are to end this epidemic by 2030."

"Reducing new HIV infections in young women is one of PEPFAR's highest priorities", said Dr. Deborah Birx, United States Ambassador and Global AIDS Coordinator. "The CAPRISA findings provide us with a greater understanding of how to protect young women. This groundbreaking study suggests young women may have been very compliant with PrEP. This new insight will allow us to move forward with a different understanding of how best to protect women from HIV".

In most of southern and eastern Africa, HIV incidence in young women (less than 25 years) continues to remain unacceptably high. About 380 000 new HIV infections occur in [adolescent girls](#) and young women aged 16-24 years each year. These young women experience HIV rates several-fold higher than their male peers, making the reduction of infection rates among [young women](#) one of the most crucial challenges in HIV prevention in Africa.

Provided by Columbia University's Mailman School of Public Health

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