CAPRISA
CENTRE FOR THE AIDS PROGRAMME OF RESEARCH IN SOUTH AFRICA

UNAIDS
CAPRISA IS A UNAIDS COLLABORATING CENTRE FOR HIV RESEARCH AND POLICY

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In this issue...

In our feature article this month we highlight the recent study published in the journal AIDS and Behaviour , which shows that young women are three times more likely to acquire HIV compared to women aged 25 years and older, highlighting the vulnerability of young women in this setting.

On page 2 we reflect on the implications of the recent results from the FACTS 001 study, which show that tenofovir gel has no effect on HIV prevention in the population studied due to low adherence.

The PEPFAR-initiated DREAMS workshop is featured on page 3 and we congratulate Dr McKinnon on his NIH. grant to study integrin a4b7 as a predictor

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Risk factors for HIV acquisition in high risk women in a generalised epidemic

South Africa continues to experience one of the largest HIV epidemics in the world, with women bearing a disproportionate burden of HIV infection. Factors associated with HIV risk are incompletely elucidated in this setting. This study by Naicker et al published in the journal *AIDS and Behavior* explored demographic, clinical and behavioural characteristics associated with HIV acquisition among 245 high risk women enrolled in the CAPRISA 002 cohort study.

HIV negative women, considered to be high risk if they self–identified as sex workers or had at least three sexual partners in the 3 months prior to recruitment, were enrolled and followed up for a period of 24 months or until the study endpoint of HIV infection.

Twenty-eight women acquired HIV with an overall HIV incidence of 7.20 per 100 women years [95% Confidence Interval (CI) 4.50–9.80]. The highest HIV incidence was observed among women aged 18–24 years [IR 13.20 per 100 wy, 95% CI 6.59–23.62]. In multivariable analysis, after adjusting for demographic, behavioural and clinical factors including laboratory diagnosed STIs, younger women were almost three times more likely to acquire HIV compared to women aged 25 years and older [adjusted Hazard Ratio (aHR) 2.61, 95% CI 1.05–6.47]. Women in relationships with multiple sex partners had more than twice the risk of acquiring HIV when compared to women who had no partner or who had a husband or stable partner (aHR 2.47, 95% CI 0.98–6.26). These trends remained when the analysis was restricted to women reporting sex for compensation.

Dr Nivashnee Naicker - Research Clinician

This study reiterates the vulnerability of young women in this setting. Furthermore, women with multiple partners were more likely to acquire HIV compared to women reporting stable relationships. HIV prevention programmes must address young women's vulnerability and sex partner reduction in this setting.

For further reading see:

Naicker N, et al Risk factors for HIV acquisition in high risk women in a generalised epidemic setting. AIDS and Behavior 2015; DOI 10.1007/s10461-015-1002-5

New tenofovir gel study shows no effect on HIV prevention

FACTS
Follow-on African Consortium for Tenofovir Studies

HIV prevention for women suffered a setback when a study conducted by the **F**ollow-on **A**frican **C**onsortium for **T**enofovir **S**tudies (FACTS) reported that its results do not confirm the HIV protective effect of tenofovir gel shown previously in the CAPRISA 004 trial. The FACTS 001 trial involving 2059 South African women showed no overall HIV prevention benefit of the gel. However, a sub-group analysis based on gel use confirmed by tenofovir detection in genital fluid, showed a 52% reduction in HIV infection. The CAPRISA 004 study had reported in 2010 that tenofovir, applied as a gel before and after sex, reduced HIV infection by 39% overall and by 54% in women who used the gel consistently.

The results of the FACTS 001 study, which was led by Professors Helen Rees and Glenda Gray, were markedly influenced by the large proportion of women who did not apply the gel consistently. This is similar to the experiences in the VOICE (**V**aginal and **O**ral **I**nterventions to **C**ontrol the **E**pidemic) trial involving women from Uganda, South Africa and Zimbabwe. The VOICE study recently reported no impact of tenofovir gel on HIV prevention because many of the women in that trial did not adhere to the daily dosing regimen.

"Tenofovir gel prevents HIV infection when it is used but most of the women in the FACTS study did not manage to apply the gel consistently when they had sex." said Professor Quarraisha Abdool Karim, Associate Scientific Director of CAPRISA and leader of the CAPRISA 004 trial. "While the results are disappointing, the high HIV infection rates in this trial highlight the urgent need for continued efforts to find appropriate HIV prevention tools for women in Africa."

Research on tenofovir gel is continuing. Tenofovir gel is currently being studied by the Microbicide Trials Network as a rectal application in men who have sex with men in several countries, including South Africa. CAPRISA is in the process of completing the CAPRISA 008 trial, which assesses gel adherence in women receiving tenofovir gel in conjunction with family planning. This real world implementation study may shed additional light on adherence when using a product that users know works. Further, a vaginal ring with both tenofovir and a contraceptive is being developed with the aim of improving tenofovir adherence in women who are also strongly motivated to prevent pregnancy.

Professor Salim S. Abdool Karim, Director of CAPRISA congratulated the FACTS 001 study team on this multicentre study and, commented that, "CAPRISA remains fully committed to HIV prevention technologies that empower women to protect themselves from HIV. We are now undertaking research on newer long-acting agents such as our recently discovered broadly neutralising antibodies, which could potentially be used as a 3-monthly injection to prevent HIV."

Women have a disproportionately high burden of HIV in Southern Africa. Within the KwaZulu-Natal province of South Africa where CAPRISA conducts its research, 5 sub-districts have HIV prevalence rates in pregnant women that exceed 40%. CAPRISA calls on AIDS researchers to redouble efforts, despite the recent disappointments, to find new HIV prevention technologies for women. Reducing the high infection rates among young women is key to controlling the epidemic, particularly in sub-Saharan Africa.

CAPRISA Participates in DREAMS Workshop

Professor Quarraisha Abdool Karim, Associate Scientific Director at CAPRISA, delivered a presentation titled: Why now? PreEPping girls for an HIV-free future, at the launch of the DREAMS project, a $210million partnership funded by the Nike Foundation, Gates Foundation and PEPFAR to prevent HIV infection in adolescent girls and young women ages 15-24 held in Johannesburg on January 26, 2015.

The objectives of the week long workshop included, to advance knowledge on HIV prevention through presentations from leading experts in the field, to set targets for incidence reduction in each DREAMS country, to develop country-specific strategic plans for reaching those targets, to coordinate with civil society, ministry of health officials, the private sector and key multilateral partners and to generate multi-stakeholder engagement in DREAMS planning. Ambassador Deborah Birx US Global AIDS Coordinator opened the meeting and underscored the importance of this key population and 'using data to effectively reach adolescent girls and young women'.

The majority of women living with HIV are from sub-Saharan Africa, and a disproportionate proportion of new HIV infections in the region are young women and adolescent girls in the 15-24 year age group making HIV prevention in this group an urgent priority for epidemic control explained Prof Abdool Karim.

L-R: Dr Lucie Cluver (Oxford), Professor Quarraisha Abdool Karim and Dr Patricia Machawira

NIH funds new Study

A grant to fund a study on "Integrin a4b7 as a predictor of HIV acquisition and pathogenesis." was awarded to Dr Lyle Mckinnon (PI) who is a Research Scientist at CAPRISA and Professor Aftab Ansari (co-PI) from Emory University in the USA under the NIH -MRC joint research programme. Other collaborators include Dr Jim Arthos from the NIH and Professor Lynn Morris from National Institute of Communicable Diseases.

The grant a total of $333,288 over a two year period will fund Mckinnon and Ansari's work will test the hypotheses that the integrin α4β7 facilitates HIV transmission by serving as an enhancer of mucosal attachment for the virus shortly after HIV exposure, allowing the virus efficient transit to the gut.

Dr Mckinnon explains: "Several lines of evidence including *in vitro* and non-human primate studies suggest that blockade of integrin α4β7, a key gut homing and HIV-binding molecule, could show promise as an HIV prevention modality." He said that the proposed cohort study of CAPRISA004 and 008 samples aims to build on this by providing a critical link between *in vitro* and animal model data. "This cohort provides a rare combination of prospective follow-up and sampling of high-risk women, some of whom acquire HIV, at key pre- and post-infection time points. Since α4β7-blocking antibodies are already FDA-approved for the treatment of inflammatory bowel disease, mounting evidence suggests that α4β7 might represent a useful target to test in clinical trials to prevent HIV infection."

Dr Lyle Mckinnon

Scientific papers published in 2015

10*	Dlova NC, Mankahla A, Madala N, **Grobler A**, Tsoka-Gwegweni J, Hift RJ. The spectrum of skin diseases in a black population in Durban, kwazulu-Natal, South Africa. International Journal of Dermatology 2014; doi: 10.1111/ijd.12589.
11	**Dellar RC, Dlamini S, Abdool Karim Q.** Adolescent girls and young women: key populations for HIV epidemic control. Journal of the International AIDS Society 2015, 18(Suppl 1):19408
12	Marrazzo JM, Ramjee G, Richardson BA, Gomez K, Mgodi N, **Nair G**, Palanee T, Nakabiito C, van der Straten A, Noguchi Hendrix C, Dai JY, Ganesh S, Mkhize B, Taljaard M, Parikh UM, Piper J, Mâsse B, Grossman C, Rooney J, Schwartz JL, Watts H, Marzinke MA, Hillier SL, McGowan IM, Chirenje M, for the VOICE Study Team. Tenofovir-Based Preexposure Prophylaxis for HIV Infection among African Women. *New England Journal of Medicine 2015; 372(6): 509-518.*
13	**Moore PL, Williamson C, Morris L**. Virological features associated with the development of broadly neutralizing antibodies to HIV-1. *Trends in Microbiology 2015; (In press) DOI: http://dx.doi.org/10.1016/j.tim.2014.12.007*
14	**Naicker N, Kharsany ABM, Werner L, van Loggerenberg F, Mlisana K, Garrett N, Abdool Karim SS.** Risk factors for HIV acquisition in high risk women in a generalised epidemic setting. AIDS and Behavior 2015; DOI 10.1007/s10461-015-1002-5
15	**Abdool Karim SS Abdool Karim Q, Baxter C**. Antibodies for HIV prevention in young women. Curr Opin HIV AIDS 2015;DOI: 10.1097/COH.0000000000000147
16	van Loggerenberg F, Gray D, **Gengiah S**, Kunene P, **Gengiah TN, Naidoo K,** Grant AD. A Qualitative Study of Patient Motivation to Adhere to Combination Antiretroviral Therapy in South Africa. AIDS *patient care and STDs 02/2015; DOI: 10.1089/apc.2014.0293*
17	Loveday M, Wallengren K, Brust JCM, Roberts J, Voce A, Margot , Ngozo J, Master I, Cassell G, **Padayatchi N.** Community-based care vs. centralised hospitalisation for MDR-TB patients KwaZulu-Natal, South Africa. *The International Journal of Tuberculosis and Lung* Disease 2015; 19(2):163-71
18	**Moodley D**, Moodley P, Sebitloane M, Soowamber D, McNaughton-Reyes H, Groves A, Maman S. High Prevalence and Incidence of Asymptomatic Sexually Transmitted Infections during Pregnancy and Post Delivery in KwaZulu Natal, South Africa. *Sexually Transmitted Diseases* 2015; 42(1):43-7

**continuation from previous newsletter*

Scientific Reviews

Abstracts submitted for review		Manuscripts submitted for review		Ancillary studies submitted for review	
Total#	Cumulative^	Total#	Cumulative^	Total#	Cumulative^
0	326	2	204	2	56

 # for month, ^ since committee initiation

Conference & Workshop Reminders

Conference	Dates	Deadlines: Abstracts	Deadlines: Registration	Website
International Conference on HIV and AIDS - London, United Kingdom	25-26 May 2015	25 Nov 2014	25 Jan 2015	https://www.waset.org/conference/2015/05/london/ICHA
7th South African AIDS Conference - Durban, South Africa	9-12 Jun 2015	20 Jan 2015	22 May 2015	http://www.saaids.co.za/
8th IAS Conference on HIV Pathogenesis, Treatment and Prevention (IAS 2015) - Vancouver, British Columbia, Canada	19-22 July 2015	27 Jan 2015	25 Feb 015	http://www.ias2015.org/
46th Union World Conference on Lung Health - Cape Town, South Africa	2-6 Dec 2015	24 Apr 2015	20 Aug 2015	http://capetown.worldlunghealth.org/

CAPRISA is an official research institute of the University of KwaZulu-Natal and Columbia University.

CAPRISA was established in 2002 through a CIPRA grant from the NIH, as a multi-institutional collaboration, incorporated as an independent non-profit AIDS Research Organisation

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