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In our feature article this month we highlight the three studies that were presented at AIDS 2016 during a special session titled: *New evidence: Why do young women in Africa have high rates of HIV infection?* The session was chaired by US Ambassador Deborah Birx and Dr Anthony Fauci from the NIH.

On page 2 we congratulate CAPRISA scientist, Dr Sinaye Ngcapu, on winning the Women, Girls and HIV Investigator's Prize at AIDS 2016.

Professor Quarraisha Abdool Karim pays tribute to the legacy of Nkosi Johnson at the inaugural Nkosi Johnson Memorial lecture on page 3.

Page 4 features the highlights of eminent visitors to CAPRISA during AIDS 2016.



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

Three CAPRISA studies provide new information on high rates of HIV infection in young women in South Africa resulting from the “cycle of HIV transmission” involving age-disparate sex and on two vaginal bacteria - one increasing HIV vulnerability and another undermining the efficacy of tenofovir-based topical pre-exposure prophylaxis

New evidence was presented by the Centre for the AIDS Programme of Research in South Africa (CAPRISA) consortium of South African and North American researchers at a Special Session at the AIDS 2016 Conference in Durban shedding new light on why young women in South Africa have high rates of HIV infection. The session was chaired by Ambassador Deborah Birx US Global AIDS Coordinator and Dr Anthony Fauci Director NIAID.

In a study of 9,812 individuals, the genetic code of HIV from each of 1,589 HIV positive people was analysed 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 119 South African women, those with an overgrowth of *Prevotella bivia* had an almost 13 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.



Professor Salim Abdool Karim Director CAPRISA presents the impact of the findings at the Special Session held on 19 July 2016 at the AIDS 2016 conference

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 pre-exposure 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.

.....continued on page 2



Why young women in South Africa are at high risk of HIV infection

.....Continued from page 1

These 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.

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."

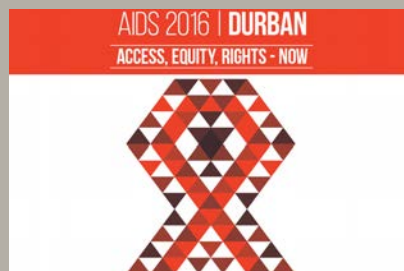
"The new evidence from the UNAIDS Collaborating Centre – CAPRISA takes us closer to understanding the very high rates of HIV among young women and adolescent girls in southern Africa" said Michel Sidibé, the Executive Director of UNAIDS. "We cannot leave women and girls behind in this Fast-Track response—in 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."

"The big take-away for us from these game-changing findings is that no one drug, or one program intervention will end AIDS," said Nancy Mahon, Global Executive Director of the M·A·C AIDS Fund, "We must work collaboratively across disciplines and think on a global level about truly locally tailored solutions." 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. "Reducing new HIV infections in young women is one of the greatest challenges in southern Africa," commented Professor Salim S. Abdool Karim, Director of CAPRISA and leader of the research. "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."

CAPRISA at AIDS 2016

In addition to the special session, several of CAPRISA's scientists and researchers were among the eminent presenters at the AIDS 2016 conference. Ten oral presentations and 22 posters were made at various sessions. CAPRISA scientists also chaired or co-chaired four sessions at the conference and Dr Lyle McKinnon was the rapporteur for Track A.



CAPRISA scientist wins the best abstract prize at AIDS 2016



Dr Sinaye Ngcapu CAPRISA research associate receives the award for the best abstract at the AIDS 2016 conference

On Tuesday 19th July CAPRISA Research associate and basic scientist Dr Sinaye Ngcapu was awarded the AIDS 2016 Women, Girls and HIV Investigator's Prize for his winning abstract entitled: "Effect of injectable hormonal contraceptives on vaginal epithelium thickness and genital HIV target cell density in women recently infected with HIV". Dr Sinaye's abstract was chosen by a committee of representatives from UNAIDS, the International Community of Women Living with HIV, the International Research Center for Women and the International AIDS Society "from amongst over 6700 abstracts submitted to AIDS 2016".



Remembering Nkosi Johnson

Professor Quarraisha Abdool Karim, associate Scientific Director CAPRISA, delivered the inaugural Nkosi Johnson Memorial lecture at the launch of South African Voices: Towards a Museum of HIV Memory and Learning on 11 July. The Museum is a collection of artifacts, artistic, historic and photographic items that pay tribute to people affected by HIV. In her address she said the occasion was an evening of remembrance, celebration, reflection, participation and learning. **This is her address...**



Quarraisha Abdool Karim delivering the inaugural Nkosi Johnson lecture on 11 July 2016

It feels like yesterday but in fact it was 16 years ago when I first heard Nkosi Johnson speak for the first time at the opening of the International AIDS conference in Durban in 2000. President Mbeki had just exited the podium leaving the thousands of delegates in a state of shock with his denialist stance on AIDS. Up comes up this tiny, well dressed little boy and from his first words captivates and inspires every person in the audience and the world. He had all of us in awe with his courage, passion, leadership. Here was this little boy speaking truth to power in a manner that was beyond his years of existence. He highlighted the plight of HIV infected children and how their rights and dignity were being violated all the way from access to medication **to schooling. On that balmy winter's** evening at the Sahara Stadium he gave a voice to the voiceless and a face to AIDS in Africa.

While this brave young boy is no longer with us – his life prematurely curtailed by AIDS like his mothers and many hundreds of thousands in South Africa, his wisdom, courage and fortitude lives on and continues to inspire us.

I can imagine Nkosi Johnson looking down at us with his huge inimitable smile and celebrating the fact that today HIV is no longer an inevitably fatal condition and that mother-to-child trans-

mission (MTCT) of HIV has almost been eliminated.

He would be ecstatic that South Africa has 3.4 million people on antiretroviral treatment, that life expectancy has increased from 48 years to 62 years and that rates of transmission to infants has declined from 30-40% to <2%. He would be pleased to see access to ARVs that he argued for has given hope to people living with HIV; reduced MTCT and is being used to prevent HIV infection and that today we are discussing the possibility that soon AIDS will no longer be a public health threat – where the number of new infections have been substantially reduced, and where AIDS related illness and death becomes history.

Even while celebrating these successes he would be challenging us whether we have turned the tide on the epidemic? Alas we would have to say that today globally we have 37 million people living with HIV and we have only reached about half of them with ARVs; that in 2015 alone 1.2 million people died of AIDS and 2.1 million new infections took place. We are seeing about 6,000 new infections each day; two out of three in sub-Saharan Africa and one out of three in young people between the ages of 15-24 years.

That 62% of all people living with HIV are in 10 countries; 8 out of the 10

are in sub-Saharan Africa with South Africa being number one with 18% of the global burden of HIV despite being home to <1% of the global population. That within South Africa about 30% of all pregnant women have HIV and despite increasing numbers of people on treatment this has remained stable for the past 8 years. Five districts have an HIV prevalence >40% and four of these 5 districts are in KwaZulu-Natal and that the remaining 7 districts have a prevalence of between 30 and 40%.

He would be saddened by the fact that adolescent girls and young women are bearing the brunt of this epidemic and have up to eight times more infection compared to their male peers and are dying from complications during pregnancy and birth. He would want to know where the fathers are what kind of community we are to watch this continue. He would be challenging us to reach the 50% not on treatment and continue to fight stigma and discrimination and work together to be the generation to end AIDS. He would be proud of the South African Voices exhibition as an important and inspiring legacy project that captures a critical point in the history of our response to AIDS through art, photos, artefacts, and documents. He would be pleased to see us remembering those who made many sacrifices to draw attention to an emerging and growing epidemic and fight for the rights to access to affordable treatment and interventions to reduce MTCT and to see how evidence based advocacy and science has brought us to this critical point

He would be urging us on and gently reminding us that the journey is not yet over and while institutionalising the voices today will ensure current and future generations can participate, reflect and learn, he would be urging us on saying: "Do all you can, with what you have, in the time you have, in the place you have....."



AIDS 2016— Highlights of visits and meetings

July 18-23 was a busy week of meetings and visitors at CAPRISA. Below are some highlights from some of these meetings:



Dr Anthony Fauci, Director of the National Institute of Allergy and Infectious Diseases at the National Institutes for Health, visited the CAPRISA Vulindlela Research Clinic on 18 July 2016. He also visited the CAPRISA eThekweni Research Clinic and CAPRISA headquarters on 20th July where he met with several of CAPRISA's scientists including: back row (L-R): Dr Aida Sivro, Dr Leila Mansoor, Dr Kathy Mngadi, Prof Ayesha Kharsamy, Ms Yajna Duki, Dr Lenine Liebenberg, Dr Kogie Naidoo, Dr Tanuja Gengiah, Dr Desh Archary, Dr Carl Montague. Front Row (L-R): Dr Nesri Padayatchi, Dr Gray Handley, Dr Anthony Fauci and Prof Salim Abdool Karim.



Mr Bill Gates and senior officials of the Bill and Melinda Gates Foundation visited CAPRISA's headquarters and the CAPRISA eThekweni Research Clinic on 19 July 2016. L-R: Prof Salim Abdool Karim, Dr Trevor Mundel, President of the Global Health Division, Mr Bill Gates, Dr Nesri Padayatchi from CAPRISA and Dr Emilio Emini, Director of HIV, Global Health program during Mr Gates's visit to the Clinic.



At the UNAIDS World Bank meeting held in Durban on 17 July 2016. From L-R: Prof Salim Abdool Karim, Dr Aaron Motsoaledi Minister of Health, Prof Quarraisha Abdool Karim and Dr Michele Sidibé Executive Director UNAIDS



CAPRISA's Scientific Advisory Board meeting was held on 20 July 2016 at the CAPRISA headquarters in Durban. The SAB meeting this year was timed to coincide with AIDS 2016 and provided an opportunity for CAPRISA to benefit from the advice of some of the world's leading scientific experts who were attending the conference.



The UNAIDS Scientific Expert Panel, which provides advice to UNAIDS on major new scientific discoveries and research evidence, as well as research gaps and strategic AIDS research needs, held its meeting on 19 July 2016 in Durban. Attending the meeting were (seated L-R): Quarraisha Abdool Karim, Françoise Barré-Sinoussi, Michel Sidibe, Sandra Nusinoff Lehrman, Deborah Persaud, (standing L-R): Peter Reiss, Peter Godfrey-Faussett, Richard Hayes, Sten Vermund, Myron Cohen, Praphan Phanuphak, Elaine Abrams, Pedro Cahn, Salim Abdool Karim, and Andy Gray



The World Health Organisation HIV Think Tank held its meeting at the CAPRISA headquarters on 23rd July 2016. Attending the meeting were: seated (L-R): Tsitsi Apollo, Keletso Makofane, Shannon Hader, Salim Abdool Karim, Deborah Bix, Gottfried Hirschall, Yogan Pillay, Francois Dabis. Standing (L-R): Angeli Archrekar, Hayet Souissi, Praphan Phanuphak, Adele Benzaken, Andy Seale, Annette Sohn, Andrew Ball, Irina Eramova, Meg Doherty, Rachel Baggaley, Geoff Garnett, Brian Chirombo, Keny Sikwese, Serge Eholié, and Daniel Low-Beer.



Scientific papers published in 2016

- 32* Kharsany ABM, Abdool Karim Q. HIV Infection and AIDS in Sub-Saharan Africa: Current Status, Challenges and Opportunities. *Open AIDS Journal* 2016; 10:34-48.
- 33 Garrett NJ, Drain PK, Werner L, Samsunder N, Abdool Karim SS. Diagnostic accuracy of the point-of-care xpert HIV-1 viral load assay in a South African HIV Clinic. *JAIDS* 2016; 72(2):e45-48.
- 34 Hosseinipour MC, Bisson GP, Miyahara S, Sun X, Moses A, Riviere C, Kirui FK, Badal-Faesen S, Lagat D, Nyirenda M, Naidoo K, Hakim J, Mugenyi P, Henostroza G, Leger PD, Lama JR, Mohapi L, Alave J, Mave V, Veloso VG, Pillay S, Kumarasamy N, Bao J, Hogg E, Jones L, Zolopa A, Kumwenda J, Gupta A. Empirical tuberculosis therapy versus isoniazid in adult outpatients with advanced HIV initiating antiretroviral therapy (REMEMBER): a multicountry open-label randomised controlled trial. *Lancet* 2016; 387(10024):1198-209.
- 35 Scorgie F, Foster J, Stadler J, Phiri T, Hoppenjans L, Rees H, Muller N. "Bitten By Shyness": Menstrual Hygiene Management, Sanitation, and the Quest for Privacy in South Africa. *Medical Anthropology: Cross Cultural Studies in Health and Illness* 2016; 35(2):161-176.
- 36 Shringarpure KS, Isaakidis P, Sagili KD, Baxi RK, Das M, Daftary A. When treatment is more challenging than the disease: A qualitative study of MDR-TB patient retention. *PLoS ONE* 2016; 11(3): e0150849. doi: 10.1371/journal.pone.0150849
- 37 Baxter C, Abdool Karim SS. Combination HIV prevention options for young women in Africa. *African Journal of AIDS Research* 2016;15(2):109-121
- 38 Rademeyer C, Korber B, Seaman MS, Giorgi EE, Thebus R, Robles A, Sheward DJ, Wagh K, Garrity J, Carey BR, Gao H, Greene KM, Tang H, Bandawe GP, Marais JC, Diphoko TE, P Hrabec P, Tumba N, Moore PL, Gray GE, Kublin J, McElrath MJ, Vermeulen M, Middelkoop K, Bekker L-G, Hoelscher M, Maboko L, Makhema J, Robb ML, Abdool Karim S, Abdool Karim Q, Kim JH, Hahn BH, Gao F, Swanstrom R, Morris L, Montefiori DC, Williamson C. Features of Recently Transmitted HIV-1 Clade C Viruses that Impact Antibody Recognition: Implications for Active and Passive Immunization. *PLoS Pathog* 12(7): e1005742. doi:10.1371/journal.ppat.1005742

*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	354	4	230	2	74

for month, ^ since committee initiation

Conference & Workshop Reminders

Conference	Dates	Deadlines		Website
		Abstracts	Registration	
HIV Research for Prevention - Chicago, Illinois, USA	17-20 Oct 2016	11 Apr 2016	1 Jul 2016	http://hivr4p.org/
24th Conference on Retroviruses and Opportunistic Infections (CROI 2017) - Seattle, Washington	13-16 Feb 2017	28 Sept 2016	17 Jan 2017	http://www.croiconference.org/



CAPRISA hosts a DST-NRF Centre of Excellence in HIV Prevention



CAPRISA is the UNAIDS Collaborating Centre for HIV Research and Policy



CAPRISA hosts a MRC HIV-TB Pathogenesis and Treatment Research Unit

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