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In our feature article we highlight an important study by senior scientist Ayesha Kharsany that examines the dynamics of HIV transmission among high school students.

On page 2 we congratulate Salim Abdool Karim, Jerry Coovadia and Anneke Grobler as the recipients of prestigious awards.

On page 3, we describe some of the Fogarty trainee's achievements. We also report on the visit of SARETI students and the HVTN leadership training.



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Examining HIV transmission dynamics among high school students

Although adolescents constitute a key population at high risk of HIV acquisition in South Africa, little is known about the HIV transmission dynamics among students within schools. This study, published in the journal *AIDS Research and Human Retroviruses*, assessed the risk factors for HIV infection and the extent of transmission among rural high school students.

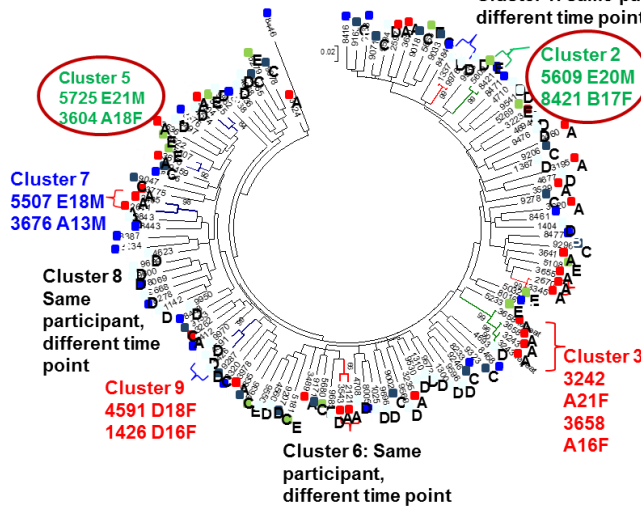
This study, which was conducted between February and May 2012 in 3,242 students from five randomly selected public sector high schools in rural KwaZulu-Natal that were participating in an anonymous cross-sectional survey, revealed a high HIV burden.

HIV prevalence was 6.8% [95% confidence interval (CI) 3.9–9.8%] in girls and 2.7% (CI 1.6–3.8%) in boys [adjusted odds ratio (aOR) = 3.0, CI 2.4–3.8; $p < 0.001$]. HIV prevalence increased from 4.6% (95% CI 1.9–7.3) in the 12- to 15-year-old girls to 23.1% (95% CI 7.7–38.5) in girls over 20 years, while in boys HIV prevalence increased from 2.7% (95% CI 0.6–4.9) in the 12- to 15-year-old boys to 11.1% (95% CI 2.7–19.4) in those

over 20 years. The lack of a living parent was the most important factor contributing to high risk among this group of adolescents. Specifically, HIV prevalence in both girls (aOR = 3.6, CI 2.9–4.5; $p < 0.001$) and boys (aOR = 2.8, CI 1.2–6.2; $p = 0.01$) was higher in those without a living biological mother.

The high burden of HIV infection among students was not associated with intraschool transmission in this rural setting.

Cluster 1: same participant, different time point



Gag gene (p17p24 fragment) sequences from 118 learners (88 Females & 30 Males) and 135 community sequences

Analysis of the HIV sequences obtained from students revealed only two clusters from within the same school and three interschool clusters. The majority of the HIV infections in these adolescents seem to be acquired from sources other than those currently found in students attending the school concerned.

Further reading

Kharsany ABM, et al. HIV infection in rural South African high schools: Role of transmissions among students. *AIDS Research and Human Retroviruses* 2014; doi: 10.1089/AID.2014.0110



Eminent Scientist recognised for Exceptional Contribution to Science

Internationally recognised scientist and academic Professor Salim Abdool Karim received the Royal Society of South Africa's 'most prestigious accolade' the JOHN F.W. HERSCHEL MEDAL for 2014 at the Society's Annual Awards Dinner in Cape Town on 2 September 2014.

The President of the Royal Society of South Africa, Professor Donald Cowan, explained that Professor Abdool Karim is receiving this medal for his, "exceptional multidisciplinary contribution to science in South Africa" and "marked global impact in the fight against AIDS".

Professor Abdool Karim, a renowned HIV/AIDS researcher, is the Director of the Centre for the AIDS Program of Research in South Africa (CAPRISA), and Pro Vice-Chancellor (Research) at the University of KwaZulu-Natal. He is also Professor of Clinical Epidemiology at Columbia University and Adjunct Professor of Medicine at Cornell University. He was also, until recently, President of the South African Medical Research Council. His research on HIV prevention and the treatment of HIV-TB co-infected patients have had a marked influence on international policy and approaches.

The Royal Society commended Professor Abdool Karim in conferring him

with their highest accolade, stating that "Few researchers in Africa, or globally, have been as influential and have had impact of such major consequence on both HIV prevention and treatment... We salute you and your substantial accomplishments."

"I am honoured to be receiving this medal, which recognises 25 years of research on HIV. I have been fortunate to have the opportunity to have worked with many great researchers within South Africa and beyond its borders," said Professor Abdool Karim, "It is a particularly humbling experience to work in a field that started off with so much pain and suffering and to witness today the benefits that science has brought in the way of new prevention and treatments that are saving lives".

Professor Abdool Karim is the chairperson of the UNAIDS Scientific Expert Panel and scientific advisor to the Executive Director of the Joint United Nations Programme on HIV/AIDS (UNAIDS). In addition he serves on the Scientific Advisory Board



Professor Salim Abdool Karim receiving the John FW Herschel Medal for 2014 from Councillor, Professor Mike Perrin.

for Global Health of the Bill and Melinda Gates Foundation and the World Health Organisation (WHO) Expert Advisory Panel on Sexually Transmitted Infections and HIV. He is an elected Fellow of The World Academy of Sciences, the African Academy of Sciences, the Academy of Science in South Africa and the American Academy of Microbiology. He is a Foreign Associate Member of the US Institute of Medicine.

Head of Statistics receives ISCB Award

Anneke Grobler's paper titled "CD4 counts in a 3-arm longitudinal clinical trial with substantial missing data: a sensitivity analysis", earned her the International Society for Clinical Biostatistics (ISCB) Conference Award for Scientists (CAS) and the opportunity to attend the ISCB conference held in Vienna where she presented the paper.



Anneke Grobler, Head: Data Management and Statistics, CAPRISA

"My presentation", explained Anneke, who is the Head of Statistics at CAPRISA, "focused on the application of statistical methods. It focused on the importance of taking the fact that some data is missing and that this missing data can influence the results into ac-

count during data analysis. If missing data are missing for a reason, for example sicker patients do not attend visits and therefore have missing results, the findings based on the observed results only could be biased."

NRF Lifetime Achievement Award for Prof Hoosen Coovadia



Achievement Award, for his outstanding contributions to scientific research. He was one of two recipients of this award. "I am in awe of your work and I thank you, on behalf of the South African people, from the bottom of my heart." Minister of Science and Technology Naledi Pandor said.

Professor Coovadia, associate scientific director at CAPRISA, is widely respected as an international authority on HIV and AIDS, particularly mother-to-child transmission. He has published 338 papers on the factors which cause morbidity, disability and mortality among Africa's children.

Distinguished scientist, intellectual and anti-apartheid activist Professor Hoosen (Jerry) Coovadia (above) received the National Research Foundation (NRF) highest honour and most prestigious award, the NRF Lifetime



Fogarty Trainee scoops Best Poster Award

CAPRISA PhD student Sinaye Ngcapu scooped the best poster award in the student category at the University of KwaZulu-Natal Health Sciences Research Symposium for his poster titled "Injectable hormone contraceptives and genital inflammation in high-risk women". His award, a cheque for R15 000, will fund his travel to attend a scientific conference.

"Because hormonal contraceptives play a critical role in protecting women from unwanted pregnancies, and its associated harmful biological and social sequelae, it is critical for well-designed studies to in-

vestigate the effect of contraceptive choice on risk for HIV infection in uninfected women; as well as the risk of rapid disease progression in HIV-infected women in an already high-prevalence setting," said Sinaye.

As a Fogarty trainee Sinaye spent three months at the Northwestern University in Chicago which he describes as "an awesome opportunity to both conduct research with leading scientists in the field and immerse myself in an entirely different scientific world".

Sinaye plans to complete his PhD next year. He attributes his success to personal sacrifice and support from CAPRISA.

"Until April this year, I have never had the luxury of being a full time student, having to work to support myself through my studies and, despite this, I have consistently aimed for excellence under difficult conditions. But, I am forever grateful to CAPRISA for granting me resources and space to grow.



Sinaye Ngcapu (left) receiving his award from the College DVC, Professor Rob Slotow (right)

SARETI Student Visit to CAPRISA



A diverse group of 2014 SARETI Masters in Research Ethics students from five African countries visited CAPRISA on 11 September. Hosted by CAPRISA Project Manager, Marian Swart, and Training Coordinator and Senior Scientist, Ayesha Kharsany, the students gained insight into CAPRISA's core activities. Presentations included an overview of

CAPRISA and an opportunity to view the plenary presentation by Professor Salim Abdool Karim delivered at the AIDS 2014 conference held in Melbourne - this generated lively discussion. The tour of the eThekweni Research site provided an opportunity for students to pose questions pertaining to ethical issues.

HVTN Site Leadership Training

The HVTN Site Leadership Training was held earlier this month in preparation for the upcoming trials beginning in 2015. This training provided the team with the opportunity to learn about best practices in respect of operations, community and media for the conduct of HIV vaccine trials, as well as an opportunity to learn and share best practices.

From left: Kathryn Mngadi, Charlene Harichund, Diantha Pillay and Nigel Garrett.



Fogarty Trainee Recognised for Excellence

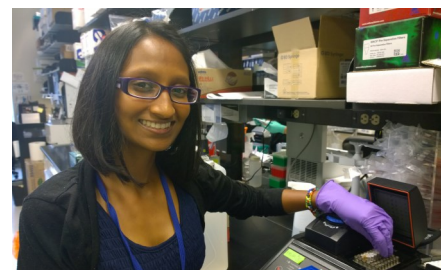
Fogarty trainee and PhD student Jinal Nmathemba Bhiman (27), is the recipient of a 2014 DST South African Women in Science Doctoral Award. Jinal (*below right*) who is based at the Institute for Communicable Diseases (NICD) is co-supervised by CAPRISA Research Associates Professors Penny Moore and Lynn Morris. The title of her PhD research topic is 'Affinity maturation of strain-specific neutralising antibodies in HIV-1 subtype C infection as a prerequisite for neutralisation breadth'. "Her focus", explained Morris, "is on understanding how broadly neutralising antibodies, needed for an HIV vaccine, arise in some HIV infected people. She has made significant contributions to this work which is evident in her co-authorships on publications in *Nature Medi-*

cine and *Nature*, among the top scientific Journals in the world".

Jinal earned her Master's degree with distinction and spent three months at the Vaccine Research Center (VRC) in Washington DC on a Columbia University-Southern African Fogarty AIDS traineeship where she learned to isolate broadly neutralising antibodies using B cell culture. In June this year she returned to the VRC on a second Fogarty traineeship to isolate and characterise additional antibodies some of which are under discussion for use in passive protection studies.

"I am honoured to have been selected to receive a postgraduate fellowship at the 2014 DST Women in Science Awards", said Jinal. "I am very grateful to my

mentors, colleagues, family and friends for their advice, guidance, support and encouragement. I am also very grateful to all CAPRISA staff and participants for enabling us to carry out such exciting research". Jinal plans to invest her DST award of R40 000 to purchase personal equipment for her research studies.





Scientific papers published in 2014

- 57* **Kharsany ABM**, Buthelezi TJ, Frohlich JA, Yende-Zuma N, Samsunder N, Mahlase G, **Williamson C**, Travers S, Marais JC, **Dellar RC**, **Abdool Karim Q**, **Abdool Karim SS**. HIV infection in rural South African high schools: Role of transmissions among students. *AIDS Research and Human Retroviruses* 2014; doi: 10.1089/AID.2014.0110
- 58 Mastro TD, Sista N, **Abdool Karim Q**. ARV-based HIV prevention for women where we are in 2014. *Journal of the International AIDS Society* 2014; 17(Suppl 2):19154
- 59 Kepler TB, Liao HX, Alam SM, Bhaskarabhatla R, Zhang R, Yandava C, Stewart S, Anasti K, Kelsoe G, Parks R, Lloyd KE, Stolarchuk C, Pritchett J, Solomon E, Friberg E, **Morris L**, **Karim SS**, Cohen MS, Walter E, Moody MA, Wu X, Altae-Tran HR, Georgiev IS, Kwong PD, Boyd SD, Fire AZ, Mascola JR, Haynes BF. Immunoglobulin Gene Insertions and Deletions in the Affinity Maturation of HIV-1 Broadly Reactive Neutralizing Antibodies. *Cell Host & Microbe* 2014; 16(3):304-313
- 60 Mann JK, Chopera D, Omarjee S, Kuang XT, Le AQ, Anmole G, Danroth R, Mwiranzi P, Reddy T, Carlson J, Radebe M, Goulder P, Walker BD, **Abdool Karim S**, Novitsky V, **Williamson C**, Brockman MA, Brumme ZL, Ndung'u T. Nef-mediated down-regulation of CD4 and HLA class I in HIV-1 subtype C infection: association with disease progression and influence of immune pressure. *Virology* 2014; 468-470C:214-225
- 61 **Padayatchi N**, Loveday M, Naidu N. Drug Resistant Tuberculosis Control in South Africa – Scientific Advances and Health System Strengthening are Complementary. *Expert Opinion On Pharmacotherapy* 2014; 15(15):2113-6
- 62 Nandla VI, Moodley D, **Grobler A**, Bagratee J, Maharaj NR, Richardson P. Anaemia in Pregnancy is Associated with Advanced HIV Disease Stage: a HPTN046 Substudy. *PLOS One* 2014; 9(9):e106103. doi: 10.1371/journal.pone.0106103.

*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 [^]
1	326	2	202	1	53

for month, [^] since committee initiation

Conference & Workshop Reminders

Conference	Dates	Deadlines		
		Abstracts	Registration	Website
HIV Research for Prevention 2014: AIDS Vaccine, Microbicide, & ARV-based Prevention Science — Cape Town, South Africa	28-30 Oct 2014	Closed	15 Oct 2014	www.hivr4p.org
9th International Workshop on HIV Transmission – Cape Town, South Africa	25-26 October	29 August	15 Sept 2014	www.virology-education.com
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/
International Conference on HIV and AIDS - London, United Kingdom May 25 - 26, 2015	25-26 May 2015	25 Nov 2014	25 Jan 2015	https://www.waset.org/conference/2015/05/london/ICHA



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 Organization

Registration Number: 2002/024027/08

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