

## 5<sup>th</sup> IAS conference to be held in Cape Town

Between July 19 and 22, 5,000 scientists, community leaders and implementers will refocus attention on AIDS in Africa at the IAS 2009 Conference, to be held at the Cape Town International Convention Centre in South Africa. South Africa bears the largest burden of the AIDS pandemic of any country in the world, with an estimated 5.7 million people living with HIV in 2007. The decision to hold IAS 2009 in southern Africa reflects organizers' desire to refocus the attention of the international scientific community on the continued challenges facing a region that is battling a generalized epidemic, and to highlight the latest efforts to fight it.

"The need for evidence-based interventions has never been more important," said Dr. Julio Montaner, International AIDS Society (IAS) President and IAS 2009 Conference Chair, and Director of the BC Centre for Excellence in HIV/AIDS. "Good science must inform good policy and programming to ensure the best outcomes for individuals and communities. Science has given us the ability to save lives; now is not the time to be short-sighted."

The 5th IAS Conference on HIV Pathogenesis, Treatment and Prevention will focus on evidence-based approaches to HIV prevention, treatment, care and support, while emphasizing the continued need to strategically invest in HIV research, including operations research, to guide implementation of programs.

The opening session will highlight the convergence of science and activism, and feature a scientific keynote address by 2008 Nobel Laureate and IAS Governing Council member Professor Françoise Barré-Sinoussi.

While continuing its strong emphasis on basic, clinical and biomedical prevention sciences, IAS 2009 will feature a new program track focusing on operations research. The new track is intended to further emphasize the defining objective of the IAS

conference: how to quickly translate scientific discoveries into practical interventions that respond to current challenges in HIV prevention, treatment and care, particularly in low- and middle-income countries. In addition to abstract-driven sessions, the conference will feature a variety of symposia and bridging sessions.

Presentations will include:

- Reuben Granich (US): *Highly Active Antiretroviral Therapy (HAART) as Prevention*
- Amalio Telenti (Switzerland): *HIV and Host Genetics*
- Louise Kuhn (South Africa): *Prevention of Mother-to-Child Transmission*
- Wafaa El-Sadr (US): *Inflammation and HIV: A New Paradigm*
- Ron Gray (UK): *Biomedical Prevention, Including Microbicides, Vaccines, Circumcision and Pre-Exposure Prophylaxis (PrEP)*
- Bruce Walker (US): *Immune Control of HIV Replication*
- Stefano Bertozzi (Mexico): *Financing the Long-Term Response to HIV*
- Prashini Moodley (South Africa): *HIV and Extremely Drug-Resistant Tuberculosis*
- Gerald Friedland (US): *Advances in Operations Research Addressing the Convergent HIV and TB Epidemics*
- Pedro Cahn (Argentina): *Antiretroviral Therapy in 2009: Successes and Challenges*
- Rachel Jewkes (South Africa): *Gender and Sexuality: Recent Data and its Implications for HIV Prevention, Treatment, Care and Support*
- Jerald Sadoff (US): *Developments in Tuberculosis Vaccine Research*

Full conference program details and registration information are available at [www.ias2009.org](http://www.ias2009.org). During the conference, links to all abstracts, as well as webcasts, session slides and speeches will be available on the website.

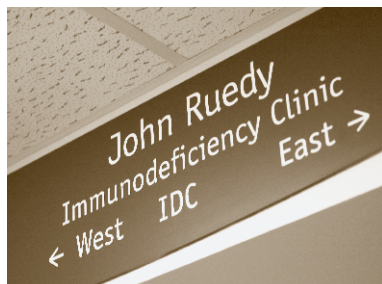


### 19-22 July 2009



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## IDC Clinic Addresses Growing Cardiovascular Risk for People with HIV/AIDS



For more than nine years, Dr. Greg Bondy has brought a unique combination of skills to his work at the John Ruedy Immunodeficiency Clinic (IDC). A trained lab physician, Dr. Bondy also has a background in endocrinology; before joining the IDC, he worked in St. Paul's division of endocrinology, specializing in the treatment of type 2 diabetes. With

expertise in metabolic medicine and in lab procedures, he was one of the very few people qualified to assess and treat people with a range of inflammatory diseases, especially those whose conditions are complicated by the effects of highly active antiretroviral therapy (HAART).

The IDC-metabolic clinic was originally founded to treat problems such as lipodystrophy, a condition in which some types of antiretroviral therapy causes profound changes in blood lipids and a resulting redistribution of body fat. Over the years, the clinic's focus has changed to reflect the new realities for people who, thanks to HAART, are living longer with HIV/AIDS.

"People with AIDS used to die before reaching middle age," Dr. Bondy explained. "Now that antiretrovirals are increasing the average lifespan of a person with AIDS, they are living long enough to succumb to the diseases of middle age." Heart disease, the leading cause of death among the general population, is 25 per cent more prevalent among people with HIV/AIDS.

People with HIV/AIDS are more likely to be susceptible to metabolic disorders such as heart disease for a number of reasons. Populations with a higher incidence of HIV/AIDS often have co-existing risk factors; for instance, gay men and people in lower socioeconomic classes, both groups with higher rates of HIV/AIDS, are also more likely to smoke, a behaviour which increases the risk of heart disease. In addition, the HIV virus itself causes a general inflammatory state in the body, and the antiretroviral drugs used in the management of HIV can also raise cholesterol levels and blood pressure.

The IDC is the only clinic in B.C. to offer specialized services for people with HIV/AIDS who are at risk for metabolic diseases such as diabetes, heart disease and strokes. Dr. Bondy and his team assess people's cardiovascular risks by measuring their cholesterol, blood sugar and an inflammatory marker called c-reactive protein

(CRP), which is associated with acute stress or inflammation. He also conducts biochemical testing and imaging techniques, most often using carotid ultrasound, which uses ultrasonic waves, not radioactivity, to measure hardening in the neck arteries.

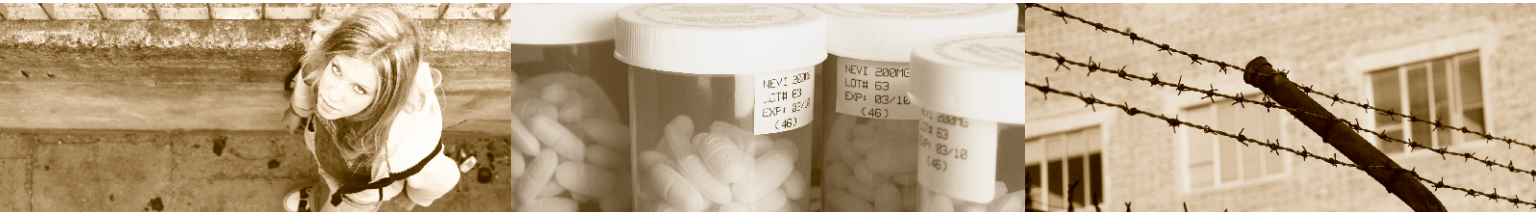
The next step is to identify a treatment program for those people who are at risk for inflammatory diseases. After assessment, patients receive information and support on improving their diet, reducing saturated fat and achieving an ideal body weight. Patients also have access to on-site exercise equipment and training. For those who wish to quit smoking, consultation with a smoking cessation specialist can be arranged.

In some cases, patients may be prescribed medication, such as cardioprotectants that lower cholesterol and blood pressure. Dr. Bondy pointed out that some people taking antiretrovirals can develop a resistance to lipid-lowering medication; for example, certain antiretrovirals will inhibit a transporter that brings cholesterol-lowering statins to the liver. Staff at the IDC is trained to recognize the potential for interactions and conflicts between cardioprotectants and antivirals.

"People might think, 'This person has HIV, he's going to die anyway. Why monitor his cholesterol?'" said Dr. Bondy. "The tragedy is that when they suffer a stroke or a heart attack, it was totally preventable."

As well as providing treatment and support, the IDC-metabolic clinic initiates trials to identify non-conflicting cardioprotectant drug treatments for people with HIV/AIDS. A year ago, Dr. Bondy initiated a trial to determine whether Crestor, a statin that is not metabolized through the liver and may therefore perform better for people on protease inhibitors, was effective in preventing heart disease in people with HIV/AIDS. The trial, conducted without access to the type of funding or sample size that most longitudinal vascular trials require, will follow a group of HIV-positive subjects taking Crestor over a two-year period. Instead of looking at the rate of heart attacks in the sample, the trial uses carotid ultrasound to measure the condition of the arteries at the outset and then again after two years of treatment.

"As the population ages, we will see more and more cases of people affected by HIV and metabolic disorders such as heart disease and diabetes," said Dr. Bondy. We have to find strategies for determining what's effective in terms of prevention and treatment."



## HAART regimens, adherence and mortality

Lima V, Harrigan R, Bangsberg D, Hogg R, Gross R, Yip B, Montaner J

The objective of this study was to characterize the impact of longitudinal adherence on survival in drug-naive individuals starting currently recommended highly active antiretroviral therapy (HAART) regimens.

Eligible study participants initiated HAART between January 2000 and November 2004 and were followed until November 2005 (N = 903). HAART regimens contained efavirenz, nevirapine, or ritonavir-boosted atazanavir or lopinavir.

The all-cause mortality was 11%. Individual adherence decreased significantly over time, with the mean adherence shifting from 79% within the first 6 months of starting HAART to 72% within the 24- to 30-month period (P value <0.01). Nonadherence over time (<95%) was strongly associated with higher risk of mortality (hazard ratio: 3.13; 95% confidence interval (CI): 1.95 to 5.05). Nonadherent (<95%) patients on nonnucleoside reverse transcriptase inhibitor (NNRTI)-based and boosted protease inhibitor-based regimens were, respectively, 3.61 times (95% CI: 2.15 to 6.06) and

3.25 times (95% CI: 1.63 to 6.49) more likely to die than adherent patients. Within the NNRTI-based regimens, nonadherent individuals on efavirenz were at a higher risk of mortality.

Incomplete adherence to modern HAART over time was strongly associated with increased mortality, and patients on efavirenz-based NNRTI therapies were particularly at a higher risk if nonadherent. These results highlight the need to develop further strategies to help sustain high levels of adherence on a long-term basis. (*Epidemiology and Social Science*)

## Incarceration and drug use patterns among injection drug users

DeBeck K, Kerr T, Li K, Milloy MJ, Montaner J, Wood E

To investigate whether incarceration deters drug use, researchers looked at drug use patterns among a large group of injection drug users surveyed regularly from May 1996 to December 2005.

This study found that, among the 1,603 injection drug users surveyed, those who were recently incarcerated were half as likely to cease their drug use for a period of six months or more. Conversely, drug users who were recently [on methadone maintenance addiction treatment were significantly more likely to report

ceasing their drug use for a period of six months or more.

To further investigate the potential impact of incarceration on subsequent drug use, researchers identified drug users who reported having been incarcerated during the study period and compared their drug use patterns before and after a period of incarceration with those of drug users who reported having never been incarcerated.

The study found no statistically significant differences in drug use patterns between the two groups. In this study of injection drug users, incarceration was shown to be ineffective in deterring or reducing drug use.

(*Addiction*)

## Barriers to condom use among female sex workers

Shannon K, Strathdee S, Shoveller J, Rusch M, Kerr T, Tyndall M

The study investigated the relationship between environmental-structural factors and condom-use negotiation with clients among female sex workers.

Baseline data from a 2006 Vancouver, British Columbia, community-based cohort of female sex workers was used to map the clustering of "hot spots" for being pressured into unprotected sexual intercourse by a client and

assessed sexual HIV risk. The study used multivariate logistic modeling to estimate the relationship between environmental-structural factors and being pressured by a client into unprotected sexual intercourse.

In multivariate analyses, being pressured into having unprotected sexual intercourse was independently associated with having an individual zoning restriction (odds ratio [OR]=3.39; 95% confidence interval [CI]=1.00,9.36), working away from main streets because of policing (OR=3.01; 95% CI=1.39, 7.44), borrowing a used crack pipe (OR=2.51; 95% CI=1.06, 2.49), client perpetrated violence (OR=2.08; 95% CI=1.06, 4.49), and servicing clients in cars or in public spaces (OR=2.00; 95% CI=1.65, 5.73).

There is urgent need for environmental-structural HIV-prevention efforts that facilitate sex workers' ability to negotiate condom use in safer sex-work environments and criminalize abuse by clients and third parties. (*American Journal of Public Health*)

## Kudos

The students, scientists and researchers of the BC-CfE continue to garner awards for their hard work, dedication and original research. Recently, the following individuals were recognized for their achievements in the field of HIV/AIDS research:

- Dr. Mark Tyndall was presented with the AccolAIDS (presented by the BCPWA) award for Science/Research/Technology at the AccolAIDS 2009 Awards Gala.
- Kate Shannon won an operating grant from Canadian Institutes of Health Research (CIHR) for five years to further her work around the risks and health outcomes among women in public place-based sex work.
- Angela Kaida, a PhD student at the BC-CfE, just won the New Investigator Award in Epidemiology and Public Health from the Canadian Association for HIV Research (CAHR).
- Ed Mills won two CIHR grants for his work in Africa as part of the BC-CfE Treatment as Prevention initiative.
- Andrea Krüsi won the CIHR Frederick Banting and Charles Best Canada Graduate Scholarship.
- Kanna Hayashi won the CIHR University of British Columbia (UBC) Entrance Scholarship.
- Aranka Anema received a Vanier Canada Graduate Scholarship.
- Danya Fast was awarded the Vanier Canada Graduate Scholarship and the New Investigator Award in the Social Science category.
- Cody Callon won the CIHR HIV/AIDS Community Based Research Program Master's Award.
- Lindsey Richardson won the Pierre Elliot Trudeau Foundation Doctoral Scholarship.

## BC-CfE senior statistician uncovers higher margins of error with new assay

Dr. Viviane Dias Lima, with Drs. Richard Harrigan and Julio Montaner, has uncovered a significant flaw in the new Taqman assay method intended to replace the existing Amplicor assay method used to measure HIV viral load.

In a research paper published in the Journal of AIDS Research, Lima investigated the application of the new COBAS Ampliprep Taqman HIV-1 assay in comparison with the COBAS HIV-1 Ampliprep AMPLICOR MONITOR ultrasensitive assay version 1.5, with a particular focus on the most clinically relevant region near the lower limit of quantification.

Results showed that despite general agreement of these assays over a wide dynamic range, the Taqman assay resulted in a nearly twofold increase (from 3.6% to 6.9%) in the number of patients experiencing a plasma HIV-1-RNA level of greater than 50 copies/mL after being suppressed to levels below 50 copies/mL consistently during the previous year ( $p < 0.01$ ).

The increased frequency of detectable plasma HIV-1 RNA levels at the threshold of 50 copies/mL with the new Taqman assay has important implications for HAART monitoring. It is currently impossible to determine whether the Taqman or the Amplicor method is more likely to report "real" results, but the additional viral load testing, repeated medical visits and significant stress for the patients undergoing the new assay are, unfortunately, all too real outcomes.

The paper concludes that until there is clinical evidence that patients with detectable HIV by the Taqman assay (but undetectable HIV with Amplicor) have differential outcomes, it is unclear whether the Taqman assay is appropriate for routine management of HIV-1 therapy. Caution is required in the interpretation of low-level viraemia by the Taqman assay until a clinical validation of a new cut-off is performed.

## BC Centre for Excellence in HIV/AIDS

- > Improve the health of British Columbians with HIV through comprehensive research and treatment programs;
- > Develop cost-effective research and therapeutic protocols;
- > Provide educational support programs to health-care professionals;
- > Monitor the impact of HIV/AIDS on B.C. and conduct analyses of the effectiveness of HIV-related programs.

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