

STOP HIV/AIDS “TREATMENT AS PREVENTION” IN ACTION

*Extending HAART via Treatment as
Prevention saves lives, prevents
HIV transmission and reduces health costs*

While an outright cure or a preventive vaccine for HIV/AIDS remains elusive, remarkable advances in HIV treatment have been achieved over the past two decades. Most significant among these advances is the development of highly active antiretroviral therapy (HAART).

WHAT IS HAART?

HAART is a combination of antiretroviral drugs that fully suppress HIV replication and therefore renders the number of viral copies present in a patient’s blood undetectable, as measured by commercially available plasma viral load assays.

HAART became the standard of care in developed nations around the world following the International AIDS Conference in Vancouver in 1996. HAART use significantly reduced morbidity and mortality among treated patients, allowing dramatic improvements in the quality and duration of life for HIV-infected individuals. In BC, by 1999, (within three years of deployment of our HAART program) the BC-CFE documented an 85% reduction in HIV/AIDS mortality among patients engaged in treatment.

In July 2006 at the International AIDS Conference in Toronto, the BC-CFE provided compelling evidence that the viral load suppression achieved by HAART substantially reduced transmission of HIV. In a viewpoint article published in *The Lancet* in the summer of 2006, the BC-CFE proposed that the expansion of HAART coverage to all those in medical need would be the most effective strategy to dramatically reduce HIV transmission to those at risk.

TREATMENT AS PREVENTION

In 2008, the BC-CFE developed a mathematical model and a cost-effectiveness evaluation that suggested that the expansion of HAART coverage would be highly cost-effective, as it would prevent AIDS morbidity and mortality. However, when the impact of the expansion of HAART coverage on HIV transmission was taken into account, the strategy was found to have the potential of becoming cost-averting, as it would virtually eliminate vertical transmission of HIV, and dramatically reduce HIV transmission by all other routes.

Most recently, HPTN 052—a randomized trial of HIV sero-discordant (primarily heterosexual) couples—provided definitive proof of the efficacy of HIV Treatment as Prevention. The study found an impressive 96% decrease in the risk of HIV transmission with immediate HAART. Of note, immediate HAART was also associated with a 30% decrease in the combined endpoint of disease progression and death as well as an 83% reduction in the incidence of extra-pulmonary tuberculosis.

The concept of HIV Treatment as Prevention has progressively gained support from the international community, including the International AIDS Society, the World Health Organization (WHO), UNAIDS, PEPFAR, the Clinton Initiative, Médecins Sans Frontières, the National Institutes of Health, and international research-based pharmaceutical industries, among other key international stakeholders. In November 2011 US Secretary of State Hillary Clinton publicly endorsed HIV Treatment as Prevention as a central piece within the PEPFAR global strategy. This was further emphasized by US President Obama on December 1, 2011, during his International AIDS Day speech. In December 2011, *Science*, the official Journal of the AAAS named HIV Treatment as Prevention the #1 Scientific Breakthrough of 2011. Dr. Montaner jointly with Dr. Myron Cohen, the lead investigator of HPTN 052, shared the 2011 GAIA award for their work on HIV Treatment as Prevention.

STOP HIV/AIDS

On February 4, 2010, then-Minister of Health Kevin Falcon announced a four-year \$48 million pilot aimed to evaluate the impact of the HIV Treatment as Prevention strategy in BC. The strategy is a pilot project called STOP HIV/AIDS (Seek and Treat for Optimal Prevention of HIV and AIDS).

The STOP HIV/AIDS pilot aims to expand access to HIV/AIDS treatment and medication among hard-to-reach and vulnerable populations in Vancouver’s Downtown Eastside and Prince George. These regions had been identified as priority sites for the pilot project because they were disproportionately affected by HIV/AIDS. The pilot project specifically serves individuals facing multiple barriers to care including addiction, mental health issues, homelessness, and other social factors.

The four-year pilot under the leadership of the BC-CFE operates until 2013. The pilot is being carried out in collaboration with Vancouver Coastal Health, Northern Health, the Provincial Health Services Authority and Providence Health Care. The pilot is being implemented with the involvement of key community partners, including the Aboriginal community.

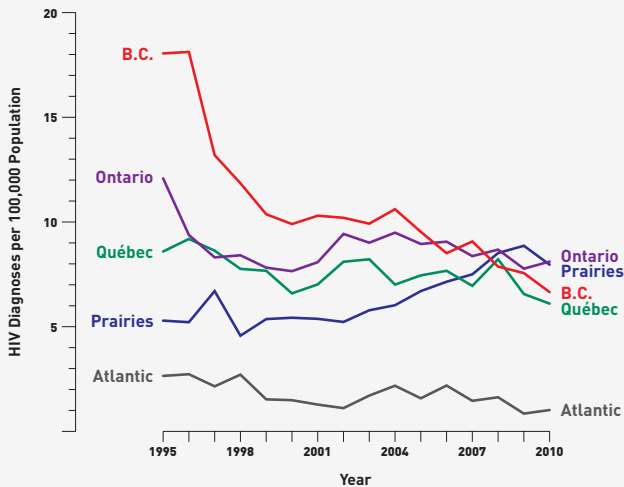
PROJECT GOALS

- ✓ Ensure timely access to high quality and safe HIV/AIDS care and treatment
- ✓ Reduce the number of new HIV/AIDS diagnoses
- ✓ Reduce the impact of HIV/AIDS through effective screening and early detection
- ✓ Improve the patient experience in every step of the HIV/AIDS journey
- ✓ Demonstrate system and cost optimization

NUMBERS SHOW BC IMPROVING WITH HAART

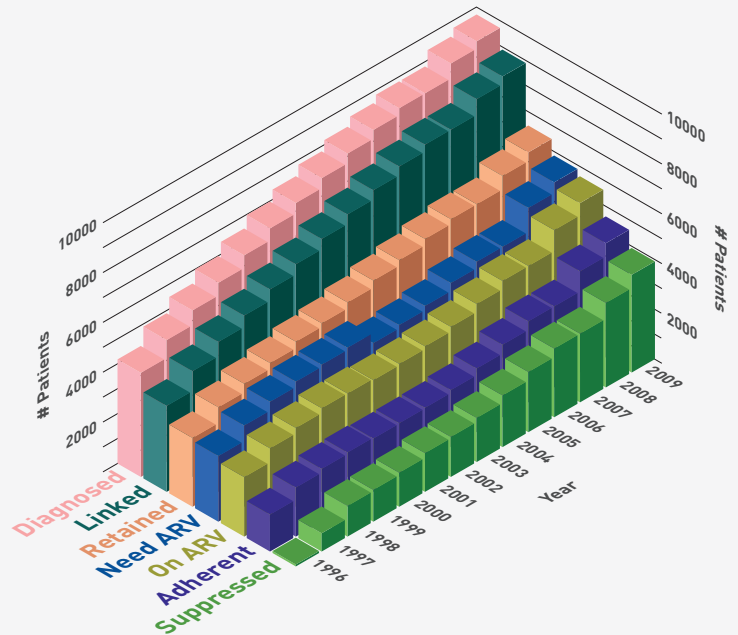
HIV DIAGNOSES BY REGION AND YEAR

Public Health Agency of Canada, 1995-2011



THE CASCADE OF CARE

Nosyk et al., Upcoming Publication



DR. JULIO MONTANER



The BC Centre for Excellence in HIV/AIDS (BC-CFE) is headed by Dr. Julio Montaner, a world-renowned researcher and a respected leader on HIV/AIDS issues and advocacy.

Since 1987, Dr. Montaner has been making a difference in the lives of people living with HIV and AIDS. Born in Argentina, Dr. Montaner knew at a very early age he wanted to be a doctor — just like his father. He arrived at St. Paul's Hospital in 1981 on a UBC fellowship. He completed his training in Internal Medicine and Respiratory Medicine at UBC and was St. Paul's chief resident. In 1988, he took the position of Director of AIDS Research. In the mid-1990's, working with other researchers at the BC-CFE, Dr. Montaner played a key role in the discovery of a drug cocktail, since known as highly active antiretroviral therapy (HAART), which reduces the amount of HIV in an infected individual's bloodstream to undetectable levels and restores immune function.



CONSULTING WITH HIS PATIENT



WITH PREMIER CHRISTY CLARK



SPEAKING AT IAS 2012

Dr. Montaner has pioneered new salvage therapy strategies for patients harbouring multiple drug-resistant HIV infection. In the early 2000's, Dr. Montaner began exploring the idea of Treatment as Prevention. The idea was to expand the use of HAART to decrease AIDS-related morbidity and mortality and to decrease HIV incidence and prevalence.

Since 2005, as director of the BC-CFE, Dr. Montaner leads the BC-CFE's efforts to translate research advances into clinical practice. In 2006, he introduced the pioneering Treatment as Prevention concept to the International AIDS Society conference in Toronto. He served the IAS as President-Elect, President and Past-President from 2006–2011, a fitting recognition of Dr. Montaner's ongoing leadership and strong commitment to the international fight against HIV and AIDS.

Among other international accomplishments, Dr. Montaner was instrumental in working with China to implement BC's Treatment as Prevention strategy in their fight against HIV/AIDS.

In 2007, he was appointed Head of the newly established Division of AIDS at the University of British Columbia Department of Medicine, the first such initiative in Canada and one of only three in North America. His peer-reviewed research papers dealing with HIV/AIDS have been published extensively. His current research interests include HAART as prevention, optimal use of HAART, salvage therapy, new antiretrovirals, as well as hard-to-reach populations and harm reduction.

BACKGROUND



BRITISH COLUMBIA
CENTRE for EXCELLENCE
in HIV/AIDS

Together we can stop HIV/AIDS

The **British Columbia Centre for Excellence in HIV/AIDS (BC-CFE)** is Canada's largest HIV/AIDS research, treatment and education facility. When the BC-CFE opened in 1992, a British Columbian was dying from AIDS almost every day. Today, advances in HIV treatment and prevention—many of them developed by the BC-CFE—have made HIV infection preventable and transformed HIV disease a chronic, manageable illness.

However, much work remains to be done. Drug resistance, adverse reactions to medication and barriers to accessing treatment are just a few of many issues facing HIV-positive individuals. The BC-CFE is internationally recognized as a leader in developing innovative, life-saving HIV and AIDS therapies to improve the health of people living with HIV and prevent infections. The inter-professional team of researchers conducts clinical, laboratory, epidemiological and behavioural research in Canada and around the world.

The BC-CFE is based at St Paul's Hospital, Providence Health Care and the University of British Columbia, and is funded by the BC Ministry of Health, donors, private partners and the pharmaceutical industry. The BC-CFE attracts peer-reviewed research funding from numerous agencies, including BC's Michael



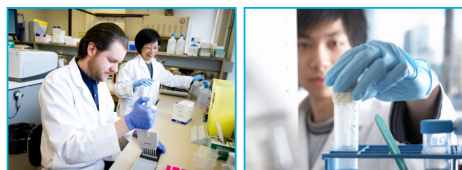
ST. PAUL'S HOSPITAL
VANCOUVER, BC

Smith Foundation for Health Research, the Canadian Institutes of Health Research and the US NIH—National Institute on Drug Abuse.

CORE PROGRAMS AND INITIATIVES

LABORATORY PROGRAM

The BC-CFE conducts translational HIV research and coordinates some of the world's largest cohort studies examining human and virus variability.



EPIDEMIOLOGY AND POPULATION HEALTH

This comprehensive program identifies risks for HIV infection while tracking access to antiretroviral therapy and clinical outcomes among vulnerable populations.

DRUG TREATMENT PROGRAM (DTP)

As of December 31, 2011, the program has distributed free anti-HIV medications to approximately 10,000 eligible HIV-infected individuals in BC. The program distributes anti-HIV drugs based on guidelines generated by the BC-CFE's Therapeutic Guidelines Committee.

CLINICAL RESEARCH

The BC-CFE conducts research within the context of clinical care at the Providence Health Care Immunodeficiency Clinic and St. Paul's Hospital's 10C-HIV/AIDS Ward. The research helps set provincial HIV/AIDS therapeutic guidelines.

CLINICAL EDUCATION AND TRAINING

The BC-CFE provides HIV/AIDS training to national and international professionals through academic courses and events, on-site training and physician preceptorship.

ADDICTION AND URBAN HEALTH RESEARCH INITIATIVE

The BC-CFE conducts population-based research on HIV/AIDS and related diseases among urban populations and those suffering addiction. Funded cohort studies involve drug users, street-involved youth and health services evaluation studies.



INTERNATIONAL CENTRE FOR SCIENCE IN DRUG POLICY INITIATIVE



The BC-CFE's Addiction and Urban Health Research Initiative serves as the Secretariat for the ICSDP. Founded by BC-CFE scientists in 2010, the ICSDP brings together international experts to produce evidence-based policy statements in the field of illicit drug policy.

ICSDP

GENDER AND SEXUAL HEALTH INITIATIVE



This initiative brings together research collaborations to evaluate the intersecting interpersonal, social, physical, and policy environments shaping sexual health, HIV/STI's and access to care among marginalized women and sex workers both locally and internationally.

TREATMENT AS PREVENTION

The Treatment as Prevention strategy involves widespread HIV testing and provision of anti-HIV drugs known as Highly Active Antiretroviral Therapy (HAART) to people with HIV.

Currently implemented through the STOP project, the Treatment as Prevention strategy is now recognized worldwide as an effective approach to combat HIV and AIDS in vulnerable populations and reduce the incidence of HIV transmission in the community.

MAJOR HIV/AIDS ADVANCES LED BY THE BC-CFE

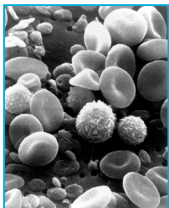
Over the past 20 years, the BC-CFE has pioneered life-saving innovations, proposed break-through strategies and campaigned for HIV and AIDS issues. As a result of the BC-CFE's many achievements, HIV-positive people who are appropriately treated can now expect to live decades of healthy, productive life.

Provincial HIV/AIDS therapeutic guidelines introduced

HIV/AIDS nursing course established at University of British Columbia School of Nursing

BC-CFE unveils results of the comprehensive INCAS (Italy, Netherlands, Canada, Australia) trial, demonstrating HAART's remarkable suppression of HIV

- Viral load testing is introduced to monitor disease progression and response to HAART



Multiple Drug Rescue Therapy is developed for individuals failing conventional therapies

BC-CFE introduces Canada's first clinical drug-resistance monitoring program

Canada's first application of therapeutic drug monitoring for patients on antiretroviral therapy

BC-CFE performs scientific evaluation of Insite, North America's first supervised safe injection facility

BC is first to implement routine therapeutic drug monitoring for all patients on antiretroviral therapy

The John Ruedy Immunodeficiency Clinic at St. Paul's Hospital reopens as a primary and specialty clinic for HIV-positive individuals, introducing a new model of care based on chronic disease management

2004 BC-CFE pioneers the use of the Biojector, a needle-free injection device for enfuvirtide



2005 Research laboratory demonstrates effects of human and virus genetic variation on response to HAART

- Pioneers the use of TMC114 and TMC125 as a life-saving treatment for patients who have exhausted all conventional options for HAART

2006 BC-CFE publishes a major paper in The Lancet introducing the concept of Treatment as Prevention, a bold new strategy for controlling the HIV/AIDS epidemic

- Dr. Julio Montaner elected President of the International AIDS Society for the term 2008–2010

2007 Human leukocyte antigen testing predicts life-threatening abacavir hypersensitivity reactions

2009 Dr. Montaner receives \$2.5 million Avant Garde Award from the US National Institute on Drug Abuse to further develop the proposed expansion of HAART, known as STOP HIV/AIDS

- BC-CFE's proposed expansion of HAART is endorsed by Stephen Lewis, Bill Clinton, the World Health Organization, UNAIDS and *The Economist*

- BC Premier Gordon Campbell commits to support STOP HIV/AIDS as a pilot project to expand access to HIV/AIDS drugs to marginalized populations of Vancouver's Downtown Eastside and Prince George

2010 BC announces \$48 million for the STOP HIV/AIDS pilot project under the leadership of the BC-CFE

2011 In February 2011, China announces the implementation of Treatment as Prevention, based on the BC-CFE model, as the cornerstone in its fight against HIV/AIDS

- The Supreme Court of Canada rules that Insite, Vancouver's safe injection site, can remain operational



2012 In April 2012, Dr. Montaner reveals that progression to AIDS and death, as well as new HIV diagnoses in BC, have significantly decreased due to the province's innovative Treatment as Prevention strategy

2012 BC-CFE celebrates 20 years of award-winning research and life-saving advancements

- The Momentum Health Study launches, coordinated by the BC-CFE and funded by NIH-NIDA and CIHR, recruiting a representative sample of Greater Vancouver men who have sex with men
- BC-CFE launches an 18-month pilot project for Non-occupational Post-Exposure Prophylaxis (NPEP), which expands BC's Treatment as Prevention strategy by providing high-risk HIV exposures with HAART at six local sites
- BC-CFE's GSHI publishes a study showing availability of indoor sex spaces is potentially life-saving to sex workers, in that they reduce violence, HIV risk and improve relationships with police
- The Washington D.C. Declaration to End the AIDS Epidemic is the official declaration of the International AIDS Conference 2012, and includes strategies that are part of BC's Treatment as Prevention strategy

• BC-CFE's Dr. Evan Wood is named Tier 1 Canadian Research Chair in Inner City Medicine at UBC



- Dr. Evan Wood appointed to lead the Addictions Medicine Program at St. Paul's Hospital
- Goldcorp announces funding for new BC-CFE-led Addictions Medicine fellowship
- Ongoing research to pioneer novel strategies to access hard-to-reach populations, including the directly observed therapy program in the Downtown Eastside and studies involving drug users (VIDUS) and sex workers (AESHA)
- Continuing research to decrease drug-related harms, including needle exchange programs
- Bill Clinton calls for increased political will and investment to end the AIDS epidemic during his closing speech at the International AIDS Conference in Washington D.C.:

"We'll have to heed Julio Montaner's years of pleas to implement Treatment as Prevention and implement combination prevention programs, we can save a lot of lives if all this is done."

