British Columbia Centre for Excellence in HIV/AIDS

Strategic Plan, 2009 - 2014
# TABLE OF CONTENTS

- List of Abbreviations .................................................. 3
- Preface ........................................................................... 4
- Executive Summary ...................................................... 7
- 1. Background .................................................................... 11
- 2. Purpose of the Strategic Plan ......................................... 15
- 3. BC-CfE Vision, Mission, Mandate, and Values ................. 16
- 4. Uniqueness of the BC-CfE ................................................ 17
- 5. Corporate Structure and Management ............................ 18
- 6. BC-CfE Core Programs .................................................. 22
- 8. Collaborations and Partnerships ........................................ 32
- 9. Strategic Goals, Objectives, and Activities ....................... 36
- 10. Performance Indicators .................................................. 39
- 11. Risk Factors for HIV/AIDS and Vulnerable Groups in BC ................................................................. 48
LIST OF ABBREVIATIONS

AIDS - Acquired Immune Deficiency Syndrome
ARV - Antiretroviral Therapy
BCCDC - British Columbia Centre for Disease Control
BC-CfE - British Columbia Centre for Excellence in HIV/AIDS
DTES - Downtown East Side
DTP - Drug Treatment Program
HAART - Highly active antiretroviral therapy
HIV - Human Immunodeficiency Virus
HCV - Hepatitis C Virus
HBV - Hepatitis B Virus
IDC - Immunodeficiency Clinic
IDU - Injection drug user
MoH - Ministry of Health (BC)
MSM - Men who have sex with men
NH - Northern Health
PHC - Providence Health Care
PHSA - Provincial Health Services Authority
PMTCT - Prevention of mother-to-child transmission
PWA/PLHA - People living with HIV/AIDS
R&D - Research and Development
SFU - Simon Fraser University
SPH - St. Paul’s Hospital, Providence Health Care
STI - Sexually transmitted infection
UBC - University of British Columbia
VCH - Vancouver Coastal Health
VCT - Volunteer counseling and testing
The Acquired Immune Deficiency Syndrome (AIDS) is caused by the Human Immunodeficiency Virus (HIV). In British Columbia (BC) the majority of new HIV cases continue to arise from men who have sex with men (MSM) and from people who use injection drugs. Nevertheless, there is concern about the increase in new cases among heterosexuals. In addition, certain populations have been found to be of particularly higher risk for HIV infection in BC, including Aboriginal peoples, female sex workers, street-involved youth, immigrants from HIV-endemic countries and incarcerated persons. Mental illness and poverty are additional risk factors for acquisition of HIV.

Untreated HIV infection predictably leads to the deterioration of the body’s immune system, allowing potentially fatal infections and cancers to prevail. In the early 1990s, one British Columbian was dying of AIDS almost every day. However, the advent of life-saving highly active antiretroviral therapy (HAART) in 1996 has since reduced AIDS-related morbidity and mortality by more than 85% among those who engage in treatment. Developed in part by researchers at the British Columbia Centre for Excellence in HIV/AIDS (BC-CfE), HAART has potentially added decades of healthy and productive life to those infected with HIV. In addition, HIV-infected mothers who engage in appropriate care, including HAART, can expect to give birth to uninfected newborns that they are likely to nurture into adulthood. HAART has transformed HIV/AIDS from a rapidly progressive fatal disease to a chronic, manageable condition.

At this time, however, there are several issues that remain problematic. Among those who engage in care, approximately half fail to do so in a timely manner. This delay in the initiation of HAART leads to compromised health outcomes, including unnecessary morbidity, mortality and hospitalization. The success of HAART has created an illusion that HIV/AIDS is easily treated. The reality is that HIV is very unforgiving. The virus has a tremendous ability to adapt to new drug environments. It can mutate to become resistant to an existing regimen, leading to treatment failure. A very high level of adherence to HAART is required to prevent drug resistance and maximize long-term clinical benefit. This remains a major challenge in HIV/AIDS management. Several factors contribute to this, including emergence of side effects and drug toxicities, as well as the presence of co-morbidities such as mental illness, addiction and co-infections such as Hepatitis C Virus (HCV) and tuberculosis (TB).

A large number of HIV-positive British Columbians fail to engage in appropriate health care in a timely position. These include individuals who are unaware of their HIV infection because they have not accessed HIV testing. In 2009 there were an estimated 12,300 HIV-infected individuals in BC. Of these, approximately 3,500 were unaware of their infection. Meanwhile, many HIV-positive individuals, aware of their infection, failed to access HAART due to a variety of often coexistent social, economic, cultural or medical challenges. A study by the BC-CfE found that between 1997 and 2005, 40% of people who died from HIV-related causes in BC never accessed HAART. As one HIV-infected person candidly remarked, “It’s hard to worry about HIV therapy when you have no roof over your head or food to eat.” Expanding HAART access to hard-to-
reach individuals in clinical need is an urgent ethical and moral imperative. This will require novel health care strategies and equally important, enhanced occur to social support and services.

Every year, approximately 350 new HIV infections are diagnosed in British Columbia. This highlights the need to strengthen and expand HIV prevention initiatives. Education and harm reduction, including condom distribution and availability of clean needles remain the backbone of HIV prevention. Technological breakthroughs in HIV prevention, such as a preventive vaccine, topical microbicides, and pre- and post-exposure prophylaxis remain areas of active research. However, progress has been slow in this area.

There continues to be mounting scientific evidence, which demonstrates a strong link between expanding access to HAART and reducing the transmission of HIV. In brief, it is now clear that HAART prevents HIV transmission from an infected mother to her newborn. Similarly, cohort studies have shown that HAART can substantially decrease the risk of HIV transmission within sero-discordant couples (couples where one partner is HIV positive and the other is HIV negative). In addition, following the introduction of HAART at the International AIDS Society Conference held in Vancouver in 1996, Taiwan and British Columbia independently reported an approximate 50% yearly decrease in new HIV infections between 1996 and 1999, with stable trends through 2007. Both groups concluded that the initial rollout of HAART programs in late 1996 was at least partially responsible for the observed decrease in new HIV infections.

It is further anticipated that the individual and public health benefits of expanded HAART access will be substantially strengthened when combined with an expansion of voluntary counseling and testing (VCT) programs, partner notification and prevention counseling or part of a comprehensive combination prevention strategy. Mathematical models have shown that the benefits associated with expanded access to HAART increase over time in proportion to the numbers of persons treated. Expanded access to HAART will also require increasing investments in outreach and support. However, this will generate significant cost-savings related to the health benefits accrued by HIV-infected individuals in terms of decreasing morbidity and hospitalization and increasing a healthy and productive lifespan. Equally important, and largely unrecognized, is the fact that expanded access to HAART will generate substantial cost-avoidance related to the prevention of new HIV infections, which today are estimated to have a lifelong medical cost between $250,000 and $750,000 per HIV-infected individual.

The BC-CfE proposed that expanded use of HAART in BC would have a substantial beneficial effect in decreasing AIDS-related hospitalization, morbidity and mortality among HIV-infected individuals and decreasing new HIV infections among those at risk. Expanded use of HAART in this context refers to increasing HAART coverage in the province to reach those in medical need in a timely fashion. While initially regarded as controversial, this approach has now gathered substantial support. Former US president Bill Clinton and former UN Ambassador for HIV/AIDS in Africa Stephen Lewis have spoken strongly in favour of this approach. WHO-based investigations have independently validated this strategy in a Lancet paper (November 2008) and UNAIDS has called for the immediate expansion of HAART under their Treatment 2.0 initiative, based on the work of the BC-CfE.
We are encouraged that the BC Liberal government supports expanded access to the HAART concept and has provided $48 million (February, 2009) over four years for a pilot project in Vancouver’s Downtown Eastside (DTES) and in Prince George. The funding has been allocated to Vancouver Coastal Health (VCH), Provincial Health Services Authority (PHSA), Providence Health Care (PHC), Northern Health (NH) and the BC-CfE.

Every new HIV infection today should be regarded as a systemic failure, translating into unneeded personal suffering, potential vehicle for further spread of the virus and an unnecessary long-term burden on an already strained health care system. In light of current advances in laboratory science, epidemiology, clinical research, care and education in HIV/AIDS, the BC-CfE has developed a renewed mission and vision for 2009 to 2014 centered around the theme of expanding HAART coverage to stop HIV/AIDS in BC. In the course of the coming five years, the BC-CfE looks forward to continuing to apply evidence-based programmatic and research strategies to improve the health of all British Columbians living with HIV. In doing so, the BC-CfE will continue to provide national and international leadership in the fight against HIV/AIDS.

Julio S. G. Montaner, MD, DSc (hon), FRCPC, FCCP, FACP, FRSC
Professor of Medicine, Chair in AIDS Research and Head of Division of AIDS, University of British Columbia;
Director, BC Centre for Excellence in HIV/AIDS, St. Paul's Hospital, Providence Healthcare;
Founding National Co-Director, CIHR Canadian HIV Trials Network;
Past-President, International AIDS Society
EXECUTIVE SUMMARY

Background
The HIV/AIDS epidemic continues to grow internationally, infecting an ever-growing number of people, including approximately 350 British Columbians each year. The British Columbia Centre for Excellence in HIV/AIDS (BC-CfE) is committed to improving the health of all HIV-positive British Columbians through the development and dissemination of comprehensive research and treatment programs for HIV and related diseases. Since the BC-CfE’s establishment in 1992, the BC-CfE has grown to become a world leader in cutting-edge HIV/AIDS research. Our internationally recognized team of inter-disciplinary professionals is unique in North America for its integration of treatment, education, research, and the procurement and distribution of life-saving antiretroviral medications. In the 1990s, BC-CfE researchers were at the forefront of the effort to establish Highly Active Antiretroviral Therapy (HAART) as the international standard of care. Recently, the BC-CfE has undertaken an ambitious program to dramatically reduce HIV transmission by expanding HAART access to all clinically eligible individuals in British Columbia. Through these initiatives the BC-CfE continues to be a provincial, national, and international leader in the fight against HIV/AIDS.

Purpose of Strategic Plan
The BC-CfE, a provincial program based at St. Paul’s Hospital (SPH), Providence Health Care (PHC) and affiliated with the University of British Columbia (UBC), has developed this strategic plan to guide our efforts over the next five years as we strive to meet the evolving challenges posed by the HIV/AIDS epidemic.

BC-CfE Vision, Mission, Mandate and Values
The BC-CfE’s Vision is to stop HIV/AIDS. The BC-CfE’s Mission is to develop, implement and disseminate novel evidence-based strategies of national and international relevance aimed to stop HIV/AIDS. Our Mandate is to improve the health of HIV-positive British Columbians, to monitor the health and cost impacts of HIV/AIDS, and to strengthen health care capacity to manage HIV/AIDS as well as to contribute to the overall good of decreasing new HIV infections. The BC-CfE continues to uphold its Values of excellence, integrity, collaboration, and respect.

Uniqueness of BC-CfE
The BC-CfE has three key features that make it unique in North America:

- Clinical and research structure: the BC-CfE manages the procurement and distribution of antiretroviral (ARV) drugs; monitors clinical, laboratory and epidemiological impacts of highly active antiretroviral therapy (HAART); and generates HIV/AIDS Therapeutic Guidelines.
- Inter-professional teams: the BC-CfE has inter-disciplinary health care professionals and researchers. Working in close collaboration, the BC-CfE’s clinical and research staff has published more than 450 scientific manuscripts in peer-reviewed journals of high impact.
Cutting-edge technologies: the BC-CfE utilizes a range of innovative technologies including: rapid 60-second HIV testing, single-dose daily HAART, phylogenetic clustering, resistance testing, therapeutic drug monitoring, human genome safety screening, which were partially developed by BC-CfE based researchers.

Corporate Structure and Management

BC-CfE reports directly to the President and Chief Executive Officer of PHC, who in turn reports to the PHC Board of Directors. Within the BC-CfE, the Operations Director and Directors of the BC-CfE’s six Core Programs report to the Director of the BC-CfE. The BC-CfE has several key supporting structures including:

- The BC-CfE Advisory Committee, which includes key stakeholders (health authorities, community representatives, relevant agencies and representatives of the provincial government), is mandated to advise the BC-CfE on philosophy, policy and future directions in HIV/AIDS
- Joint Funding Management Committee, which is responsible for reviewing the Drug Treatment Program budget and operations on an ongoing basis
- Therapeutic Guidelines Committee, which forms recommendations for clinical management of HIV/AIDS by consensus
- Stakeholders Partnership Team, which assists Health Authorities and other key partners to coordinate HIV/AIDS related activities in BC.

BC-CfE Core Programs

The BC-CfE currently has six Core programs. These include the four original Core Programs: Laboratory (1), Epidemiology and Population Health (2), Clinical Research Activities (3), and Clinical Education and Training (4), plus the Drug Treatment Program (5), and the newly established Addictions and Urban Health Research (6). Core programs are also involved in National and International activities.

Seek and Treat for Optimal Prevention of HIV/AIDS (STOP HIV/AIDS)

The BC-CfE has proposed an innovative, overarching hypothesis that expanding HAART access to all clinically eligible individuals may reduce HIV transmission at the population level, thereby decreasing HIV incidence and prevalence. The continued support of the provincial government and in collaboration with provincial stakeholders, the BC-CfE will lead, monitor and evaluate a staggered expanded roll-out of HAART in BC aimed specifically to decrease HIV/AIDS related morbidity and mortality among those infected and HIV infections among those at risk.

Collaborations and Partnerships

The BC-CfE collaborates closely with Providence Health Care (PHC) including: the Research Institute; Laboratory Services; Outreach Pharmacy; John Ruedy Immunodeficiency Clinic (IDC); and Inpatient HIV/AIDS Care (10-C). BC-CfE also collaborates closely with UBC, BC-CDC, Oak Tree Clinic, Health Authorities, MoH, MoHLS, First Nations, (eg. Union of BC Indian
Chiefs and Representatives of First Nations Health Council. BC-CfE has close collaboratives with community based organizations and has a range of governmental, community-based, private and academic partners at the provincial, national and international levels.

**Strategic Goals, Objectives and Activities**

The BC-CfE has developed three major strategic goals, with corresponding objectives and activities that it will pursue over the coming five years:

**STRATEGIC GOAL 1:** Improve the health of British Columbians with HIV through the development and dissemination of comprehensive research and treatment programs for HIV/AIDS and related diseases.

*Objective 1:* Expand HAART access within the scope of the Therapeutic Guidelines

*Objective 2:* Maintain the BC-CfE Therapeutic Guidelines for the Management of HIV and Related Diseases as a *state of the art* document generated by an inter-professional panel of experts.

*Objective 3:* Disseminate research findings to policy makers, practitioners, public health professionals, Health Authorities, community groups, HIV-positive individuals, researchers and the general public

*Objective 4:* Provide regular briefings and submissions to Government stakeholders and policy makers, both provincial and national

**STRATEGIC GOAL 2:** Develop cost-effective research and therapeutic protocols, and programs for the treatment of HIV and related diseases.

*Objective 1:* Expand Research Laboratory capabilities in virology of drug resistance, immunology, pharmacology, Human Genomics and bioinformatics

*Objective 2:* Develop tools and protocols to predict (and minimize) drug resistance and adverse effects

*Objective 3:* Monitor clinical and epidemiological impacts of HIV/AIDS and related diseases in BC

*Objective 4:* Develop a health economics initiative within the BC-CfE

*Objective 5:* Develop a health policy initiative within the BC-CfE

*Objective 6:* Implement a Knowledge Translation Initiative within the BC-CfE

**STRATEGIC GOAL 3:** Enhance capacity to deliver HIV/AIDS education and training to health and human service professionals.

*Objective 1:* Initiate and collaborate on the development and implementation of educational initiatives for the health and human service professionals

*Objective 2:* Support health and human service professionals in the delivery of treatment and care at all stages of HIV disease

*Objective 3:* Strengthen linkages with universities and other academic institutions
Performance Indicators

Performance indicators have been developed (see Section 10) to monitor and evaluate the effectiveness of BC-CfE efforts to achieve the above-mentioned Strategic Goals, Objectives and corresponding activities.
1. BACKGROUND

**History of HIV/AIDS in BC**

HIV/AIDS is projected to become the third-leading cause of death globally by the year 2020. An estimated 33.4 million people worldwide were living with HIV at the end of 2008. Latest estimates from Canada (end 2008) indicate that approximately 65,000 Canadians are HIV-positive. It is estimated that one third of all HIV-positive Canadians remain unaware of their infection. HIV/AIDS prevalence is particularly pronounced in British Columbia (BC). Although BC has only 13% of Canada’s population, it is home to 20% of national HIV/AIDS cases. In 2009 there were an estimated 12,300 HIV-positive people living in the province. The number of new HIV infections continues to be highest among men who have sex with men (MSM) (45%), followed by injection drug users (IDUs) (19%), and heterosexual/non-endemic contacts (21%). In addition to MSM and IDUs, groups that remain vulnerable to acquiring HIV/AIDS include: Aboriginals, women, female street workers, street-involved youth, incarcerated persons, immigrants from HIV-endemic countries and individuals infected with Hepatitis C Virus (HCV). Risk factors for acquiring HIV/AIDS among these groups include mental illness, addiction and poor socio-economic status. Additional unknown or emerging vulnerable groups include migrant workers and university students (see Appendix).

The vast majority of HIV-positive British Columbians live in the Vancouver Coastal Health Authority region (VCHA). The situation is particularly severe in Vancouver’s Downtown Eastside (DTES). The DTES has the lowest national life expectancy and the highest HIV prevalence in the Western world, reaching 30% among IDUs. The United Nations Population Fund drew attention to the HIV/AIDS crisis in Vancouver’s DTES in its 2007 State of the World’s Population Report, where it emphasized that HIV prevalence in the DTES is as high as in Botswana, one of the countries hardest hit by HIV worldwide.

**History of BC-CfE**

When the HIV epidemic emerged in the early 1980s, St. Paul’s Hospital (SPH) in British Columbia responded by bringing together a group of committed health care professionals, who formed the AIDS Care Team, led by Dr. A. McLeod under the leadership of Dr. John Ruedy, Chairman of the Department of Medicine. The Immunodeficiency Clinic (IDC) was established as a specialty clinic for HIV-positive patients in 1986, and in 1987 Dr. Julio Montaner became the Director of the IDC as well as the Director of the newly established AIDS Research Program within the Department of Medicine.

In 1992, the BC Ministry of Health (MoH) established the BC Centre for Excellence in HIV/AIDS (BC-CfE), which has since maintained a very close collaboration with the HIV/AIDS Program at St. Paul’s Hospital, now part of Providence Health Care (PHC) (See Section 5 for Corporate Structure and Management). The BC-CfE is a provincial agency charged with the responsibility to define, implement, evaluate and enhance the necessary treatment programs to improve and prolong the lives of HIV-infected British Columbians. Dr. Michael O’Shaughnessy
was the Founding Director of the BC-CfE and remained as such until his retirement in September 2003. Dr. Julio Montaner, formerly the BC-CfE Director of Clinical Activities, was confirmed as his successor in September 2005, following an open national search.

**BC-CfE Achievements**

- In 1992, the BC-CfE established the first provincial HIV/AIDS Therapeutic Guidelines, which it continues to review and update quarterly. In the same year, the BC-CfE also developed the Management of Accidental Exposures Guidelines, which formed the basis of the international CDC-Atlanta Guidelines.
- In 1994, it established an HIV/AIDS nursing course at the University of British Columbia School of Nursing.
- In 1996, the BC-CfE unveiled the results of the INCAS trial, demonstrating for the first time ever that triple drug therapy could suppress viral replication and put HIV in a long-term remission.
- In 1996, the BC-CfE played a key role in organizing the International AIDS Conference in Vancouver. Furthermore, BC-CfE investigators played a central role in establishing Highly Active Antiretroviral Therapy (HAART) as the new international standard of care.
- In 1996, the BC-CfE introduced viral load testing to monitor HIV disease progression and response to HAART.
- In 1997, the BC-CfE pioneered the use of quantitative polymerase chain reaction (PCR) as a primary outcome measure in clinical settings, and developed clinical strategies for multiple drug rescue therapy for patients failing conventional therapies. During the same year, it also developed an inter-professional course in HIV/AIDS prevention treatment and care through the College of Health Disciplines at UBC. The BC-CfE first to report that non-nucleoside reverse transcriptase inhibitor (NNRTI)-based triple combination HAART efficiently reduces individual morbidity and mortality.
- In 1998, the BC-CfE became the first program in North America to offer drug resistance monitoring in Canada;
- In 2000, the BC-CfE became the first program in North America to offer therapeutic drug monitoring.
- In 2003, the BC-CfE redesigned the IDC and introduced a new model of care based on chronic disease management.
- In 2004, it introduced the Biojector®, a needle-free injection device to deliver the first of a new class of ARVs.
- In 2006, the BC-CfE introduced human leukocyte antigen (HLA) testing for prediction of abacavir hypersensitivity reactions.
- In 2006, the BC-CfE introduced the concept of expanded access to Highly Active Antiretroviral Therapy (HAART) to reduce HIV incidence and prevalence at the population level, which served as the basis for the STOP HIV/AIDS initiative in BC.
- In 2007, the BC-CfE introduces Human Leukocyte Antigen (HLA) testing, a human genetic test to avert potentially life-threatening hypersensitivity reactions to abacavir, an antiretroviral agent and
- The BC-CfE’s research lab introduces widespread human pharmacogenetic testing for treatment side effects into routine clinical practice.
The interprofessional HIV/AIDS elective offered through the College of Health Disciplines, University of British Columbia celebrates its 10th anniversary. Approximately 250 students have completed the course.

The Centre initiates a large cohort study of HIV-positive injection drug users (IDUs) in the Downtown Eastside aimed at addressing barriers to HIV treatment among IDUs.

The first Canadian Division of AIDS is established within the Department of Medicine at UBC, headed by Dr. Montaner and based at the BC-CfE.

In 2008, Dr. Julio Montaner is appointed president of the International AIDS Society in Mexico City for the term of 2008-2010.

The Urban Health Research Initiative starts an Urban Health Elective for UBC medical students.

In 2009, WHO publishes an article in The Lancet that supports the BC-CfE’s call for universal voluntary HIV testing with immediate antiretroviral therapy as a strategy for elimination of HIV transmission.

The International AIDS Society second annual global summit, a groundbreaking event of international significance, is hosted by the BC-CfE and partner organizations.

Premier Gordon Campbell announces a commitment to a pilot project that will expand access to HIV and AIDS drugs to the street-involved populations in downtown Prince George and Vancouver’s Downtown Eastside.

The BC-CfE released the Drug Situation in Vancouver report. This report compiled more than 10 years of prospective data from the VIDUS, ACCESS, and ARYS cohort studies on drug use trends, drug availability, HIV rates and mortality rates among people who use drugs in the Vancouver area.

In 2010, the B.C. Minister of Health Services, Kevin Falcon, announced a four-year, $48-million pilot called Seek and Treat to expand access to those individuals medically eligible treatment and care among hard-to-reach populations, including sex trade workers, injection drug users, men who have sex with men, in Vancouver’s Downtown Eastside and Prince George. Seek and Treat, a ground-breaking strategy pioneered by the BC-CfE, aims to engage people into appropriate care, including HIV testing and highly active antiretroviral therapy (HAART).

The BC-CfE partners with LifeSciences British Columbia and UBC to host a global summit on HIV/AIDS. The event titled The Impact of Science & Innovation in the Evolving Global Health Paradigm: HIV and AIDS - A Challenge of Olympic Proportion brings together world leaders in HIV research, health, innovation and policy to share new and compelling perspectives on the challenges under a shifting global health paradigm.

The BC-CfE and the ICSDP partner with the International AIDS Society to launch the Vienna Declaration, the official declaration of AIDS 2010. The Vienna Declaration calls upon governments around the world to implement and evaluate a science-based public health approach to address harms stemming from illicit drug use. The declaration receives widespread support, including endorsements by Nobel Laureates, former heads of state, thousands of scientific experts, the cities of Toronto and Victoria, and five chief provincial medical health officers in Canada.

Dr. Montaner presides over the XVIII International AIDS Conference (AIDS 2010) in Vienna. A total of 193 countries were represented at the conference and approximately 20,000 people participated.
The lifesaving concept of “treatment as prevention” – developed at the BC-CfE – provides the building blocks for a radical new approach by UNAIDS to HIV treatment, dubbed “Treatment 2.0.” This approach aims to dramatically increase testing and treatment for HIV using the best available diagnostic tools and drugs. A BC-CfE study, published in The Lancet and released at AIDS 2010 in Vienna, shows the introduction of highly active antiretroviral therapy (HAART) for HIV patients has halved the number of new HIV diagnoses in B.C. since 1996. UNAIDS cites the study findings as evidence supporting their push for Treatment 2.0.
2. PURPOSE OF THE STRATEGIC PLAN

This document is a Strategic Plan designed to guide the BC-CfE’s response to the HIV/AIDS epidemic. It is recognized that no single sector, government or organization is by itself responsible for addressing the HIV/AIDS epidemic. It is envisaged that the Provincial Government, Health Authorities, community HIV/AIDS organizations and other stakeholders will use this document as the basis for understanding the role of the BC-CfE in moving toward their shared goal: to STOP HIV/AIDS in BC.

The BC-CfE Strategic Plan for 2009-2014 has been developed through formal and informal consultations with multiple stakeholders, including: HIV/AIDS community organizations, Provincial Government, Health Authorities, educational institutes, hospital administration, outside consultants, research institutions and BC-CfE staff.
3. **BC-CfE VISION, MISSION, MANDATE & VALUES**

**Our Vision**

To stop HIV/AIDS in the province by optimizing Highly Active Antiretroviral Therapy coverage among medically eligible HIV-positive British Columbians.

**Our Mission**

To develop, implement and disseminate novel evidence-based strategies of national and international relevance used to STOP HIV/AIDS.

**Our Mandate**

- To improve the health of British Columbians with HIV through the development and dissemination of comprehensive research and treatment programs for HIV/AIDS and related conditions
- To monitor the evolving impact of HIV/AIDS on BC
- To develop cost-effective programs
- To develop educational programs to expand and support health care professionals’ involvement in HIV/AIDS management
- To contribute to the overall goal of decreasing new HIV infections

**Our Values**

- **Excellence**
  We will meet the highest evidence-based professional standards

- **Integrity**
  We are committed to intellectual honesty and responsibility

- **Collaboration**
  We will promote mentorship and collaborations provincially, nationally and internationally

- **Respect**
  We will promote respect for the rights of individuals and organizations
4. UNIQUENESS OF THE BC-CfE

Clinical and research structure

The BC-CfE is unique in North America for its population-level understanding of HIV patients receiving HAART. Unlike other organizations across Canada and internationally that may be responsible for providing drugs only, treatment only, or research only, the BC-CfE coordinates the procurement and distribution of antiretroviral (ARV) medications throughout the province. It registers detailed clinical, laboratory and demographic information on all individuals receiving HAART into its Drug Treatment Program (DTP) database, and is thus able to monitor and research a variety of treatment outcomes. The BC-CfE’s combined clinical, laboratory and epidemiological research structure allows it to translate research findings directly into clinical ‘best practice’. This is done through its HIV/AIDS Therapeutic Guidelines document, which is disseminated and used throughout the province by physicians and other health-care providers treating HIV patients.

Inter-professional teams

The BC-CfE’s model is unique due to its inter-professional nature. Collaborating with PHC, comprehensive HIV/AIDS treatment and care is provided by a team of specialized physicians, nurses, social workers, harm reduction specialists, scientists and counselors. Meanwhile, research is designed and implemented by teams of physicians, epidemiologists, statisticians, scientists, laboratory technicians, health economists, anthropologists and policy makers. Together, these clinicians and researchers have collaboratively published more than 450 peer-reviewed articles in national and international journals of high impact, and have trained more than 100 Master’s, Ph.D., and post-doctoral students. Through collaboration with UBC, more than 300 health and human services students have completed courses in HIV/AIDS prevention, treatment, and care.

Cutting-edge technologies

The BC-CfE continually seeks to push the boundaries of HIV/AIDS research by leading innovative technologies in HIV/AIDS testing, treatment and care. In the coming years, it will employ a novel rapid 60-second in-vitro HIV test for case finding and evaluate a novel IgG3 assay to determine recent sero-conversion. It will routinely sequence new HIV-positive tests for phylogenetic clustering to identify virus strains circulating in BC, track viral clusters, and identify transmission patterns. The BC-CfE conducts routine genotypic resistance testing to determine appropriate drug regimens for patients. Where clinically appropriate, it provides once-daily single-dose therapy to reduce patients’ pill burden and increase their treatment adherence. The BC-CfE in collaboration with PHC has developed an HIV/AIDS patient registry and a clinical flow care sheet with embedded clinical practice guidelines to monitor individual patient and population care. The BC-CfE’s use of these cutting-edge technologies gives it a competitive advantage nationally and internationally.
5. CORPORATE STRUCTURE AND MANAGEMENT

Corporate Structure

BC-CfE Supporting Committees

BC-CfE Advisory Committee

The original Steering Committee was re-established as the BC-CfE Advisory Committee. The Committee is mandated to advise the BC-CfE on philosophy, policy and future directions in HIV/AIDS. The Chair of the committee is the President and Chief Executive Officer (CEO) of PHC. Members of the Committee include representatives from the BC-CfE, all Health Authorities, Government, HIV/AIDS community organizations, and hospital administrations. The Advisory Committee will contribute to the overall strategic direction, receive financial reports and performance data, and will advise on implementation of the strategic plan. The Committee meets three times a year or at the call of the Chair.
Joint Funding Management Committee

The purpose of this Committee is to review the Drug Treatment Program (DTP) budget, determine its adequacy, monitor financial operations, advise Pharmacare of potential pressures and to make recommendations. The Committee has representatives from BC-CfE, PHC, MoHLS and Pharmacare (MoH).

Therapeutic Guidelines Committee

The BC-CfE HIV/AIDS Therapeutic Guidelines Committee plays a key role in the BC-CfE's ongoing commitment to bring forward the most current information and research regarding best practices for treating HIV/AIDS. The Therapeutic Guidelines allow physicians throughout the province to become more actively involved in all aspects of prescribing and monitoring anti-HIV drug treatment regimens for their patients.

The Guidelines are formed by consensus among Therapeutic Guidelines Committee members. This information represents the Committee's interpretation of current treatment of HIV/AIDS and related conditions. The Guidelines are reviewed quarterly and revisions are mailed to physicians throughout the province. The Guidelines are the basis of treatment strategies, the results of which are constantly monitored by studying clinical and virological outcomes of all treated HIV patients in the province. These outcome studies contribute to the findings, which then are used to generate further revisions. As HAART expansion develops, the committee will be in a unique position to monitor and react to changes in the HIV disease burden and make changes to the Guidelines as needed.

STOP HIV/AIDS Pilot Project Steering Committee

This committee will support the pilot project goals to develop an HIV/AIDS improvement methodology to enhance safety and quality of HIV/AIDS care in the two pilot locations, Downtown Eastside (DTES) and Prince George, and evaluate the impact of the expansion of HAART in BC with regard to:

• HIV/AIDS related morbidity and mortality and
• HIV transmission

This Committee comprised of senior MoH, MoHL&S and Health Authorities will provide strategic visioning and priority setting and will support the STOP HIV/AIDS Pilot Project Leadership Committee.

STOP HIV/AIDS Pilot Project Leadership Committee

This newly established team works closely with Health Authorities and their partners at a system-wide, organizational and program level to facilitate their provision of accessible, effective and high quality HIV/AIDS care and treatment services. Emphasis is placed on engaging medically eligible persons on HAART.
Management

Administration and Operations

The overall role of BC-CfE’s administration and operations is to manage the day-to-day operations, strategic planning and analysis, community partnering development, communications, HR coordination, financial management and fundraising. The BC-CfE’s administration and operations department consists of a director, accountants, information technology support, communications personnel, HR coordinator, contract consultants (e.g. media and government liaison) and a support person. Responsibilities include:

- Liaise with provincial government
- Negotiate Pharmacare budget with MoH
- Consult and liaise with community leaders and Health Authorities
- Deliver effective communication strategies
- Oversee and monitor day-to-day operations
- Oversee contractual agreements
- Negotiate staff salaries
- Manage human resource activities, and payroll/personnel development
- Provide information technology support

Funding

Core funding for the BC-CfE is provided by the BC Ministry of Health (MoH). This represents $3.05 million per year that flows from the MoH, through the Provincial Health Services Authority (PHSA) via PHC to the BC-CfE. At the creation of the BC-CfE there were approximately 24 staff. Today we have more than 100 staff members. While the BC-CfE’s workload and output have increased dramatically since 1992, the core provincial funding has not changed since 1992. The expansion of the BC-CfE programs has been largely subsidized by grants from private donors, industry, and funding agencies. The BC-CfE aims to correct this, and discussions are already underway with the MoH to develop a sustainable long-term funding strategy.

The DTP is a separate program of the BC-CfE funded directly by Pharmacare (MoH) and not out of the BC-CfE’s operational budget. This program was added shortly after the BC-CfE was established. Of note, the funding for this program is not automatic; rather, it is re-negotiated on an annual basis. Currently, Pharmacare funding for the DTP consists of 90.4% for drug treatment and 9.6% for administrative support. The BC-CfE currently aims to secure a prorated overhead for this program from Pharmacare. The administrative support of the DTP is also open for annual negotiation as part of the funding negotiations of the DTP. The DTP has shown a consistent annual increase, and over the past five years the program has grown 19% annually, largely as a result of new patients commencing HAART and, to a lesser extent, due to the increased cost of (new) drugs. The DTP will continue to grow, especially as the BC-CfE expands HAART access as part of the STOP HIV/AIDS Research Program. This poses sustainability issues for the BC-CfE. The key challenge for the BC-CfE in this area relates to the open nature of the DTP mandate against the tight fiscal nature of the funding allocation, particularly as it relates to the administrative/personnel support funding of the DTP.
With regard to BC-CfE personnel support, it is important to highlight that the BC-CfE has no tenured positions at UBC, nor is there salary support for BC-CfE researchers or professional staff from PHC. As a result the BC-CfE has privately fundraised to establish five endowments at SPH. Four of these will be issued at UBC and one at SFU. Of note, these endowments only generate a fraction of the actual salary and benefits required to retain a senior faculty member. This creates a serious sustainability challenge as well as detracting from the BC-CfE’s ability to conduct external recruitment in a highly competitive environment. The BC-CfE aims to connect this to enhance its ability to attract and retain highly qualified personnel. The endowments established by the BC-CfE include:

- AIDS Research Chair at UBC/PHC
- Health Outcomes in HIV/AIDS Professorship at UBC/PHC
- HIV Virology Professorship at UBC/PHC
- LEEF Addiction Medicine Chair at UBC/PHC
- HIV Chair at SFU/PHC (under negotiation)
6. **BC-CfE CORE PROGRAMS**

**Laboratory Program**

The Laboratory consists of a director, laboratory manager, laboratory assistants, research associates and graduate students. Its responsibilities include:

- Conduct basic and applied research
- Conduct genotypic HIV drug resistance testing
- Conduct therapeutic drug level monitoring for antiretroviral drugs
- Provide support to BC-CfE clinical trials and cohort studies

The BC-CfE’s Laboratory conducts basic translational research and coordinates some of the world’s largest cohort studies examining human and virus variability. Milestone research by the Laboratory focuses on the predictors of HIV drug resistance and mitochondrial toxicity, determinants of human genetics on disease progression. It has conducted novel research on HIV envelope variation and tropism, and also on the influence of the human immune system on the virus. The BC-CfE’s Research Laboratory focuses on developing tools with clinical applications. These include techniques for monitoring the side effects and degree of adherence to medications, the early diagnosis of HIV infection, as well as tracking variations in the HIV and human genomes, which are associated with response to HIV therapy and virus pathogenicity, and other human and viral markers.

The BC-CfE Laboratory is an accredited clinical service laboratory. It performs approximately two-thirds of Canada’s clinical HIV drug resistance testing, receiving samples from all provinces (except Quebec). Some clinical services by the BC-CfE Laboratory that have been commercialized include testing for HIV drug resistance and plasma drug levels for HIV protease inhibitors and NNRTIs, which have been rolled out in Canada and the rest of the world. The BC-CfE Laboratory has also commercialized testing for resistance to enfuvirtide (Fuzeon®) and is developing tests for pharmacogenetic testing and HIV integrase inhibitor resistance tests.

The BC-CfE Laboratory has received peer-reviewed funding for several studies from the Canadian Institutes of Health Research, Michael Smith Health Research Foundation, and the Ontario HIV Treatment Network. Novel testing applications in the BC-CfE Laboratory continue to provide testing support for Phase III clinical trials for pharmaceutical industry trials. As of 2009, it has published approximately 200 papers in peer-reviewed journals of high impact and performed more than 30,000 clinical service tests.

In concordance with the STOP HIV/AIDS Research Program, the BC-CfE Laboratory plans to increase its laboratory research space and continue to recruit and retain post-doctoral or near-post-doctoral researchers in immunology, pharmacology, resistance testing and/or bioinformatics/biostatistics.
Epidemiology and Population Health Program

The Epidemiology and Population Health Program consists of a director, epidemiologists, statisticians, ethnographer, data managers, data analyst, nurses, research assistants, graduate students and support staff. Its responsibilities include:

- Monitor HIV infection in high-risk populations through existing cohorts
- Initiate new studies that investigate the origins and determinants of harmful substance use in vulnerable groups
- Conduct evaluations of health services for high-risk populations
- Participate in provincial drug monitoring exercises
- Train new researchers and support existing research groups by providing expert statistical and methodological support
- Seek provincial, national and international funding

The Epidemiology and Population Health Program emerged early in the BC-CfE’s history with the goal of monitoring the HIV epidemic among selected vulnerable populations. Early work focused on tracking HIV infection between men who have sex with men (MSM) and injection drug users (IDUs). As well, since this time, BC-CfE researchers identified risks for HIV infection and also monitored access to and outcomes from HIV treatment. This work has historically been supported through peer-reviewed grants from various funders including the United States National Institutes of Health and the Canadian Institutes of Health. The BC-CfE’s Epidemiology and Public Health Department also manages a variety of research cohorts, including:

- Drug Treatment Program Cohort is an open prospective cohort of individuals receiving HAART through the BC-CfE’s DTP
- HAART Observational Medical Evaluation and Research (HOMER) is a retrospective cohort of HIV-positive individuals receiving HAART in BC, ongoing from 1996
- Longitudinal Investigations into Supportive and Ancillary (LISA) Health Services Cohort is a prospective cohort of HIV-positive individuals on HAART in BC, ongoing from 2007.
- Canadian Observational Cohort (CANOC) is an open prospective cohort of individuals receiving HAART throughout Canada since 2000
- VanGuard Study is a retrospective cohort of young men who have sex with men in Vancouver Lower Mainland, which recruited men from 1996 to 2003
- Vanouver Lymphadenopathy Study (VLAS) is a retrospective cohort of men who have sex with men, which recruited men from 1982 to 1998

The BC-CfE’s Epidemiology and Public Health Department is engaged in the following research collaborations:

- The North American AIDS Cohort Collaboration on Research and Design (NA-ACCORD) is a open prospective cohort of individuals receiving HAART throughout North America
- Antiretroviral Therapy Cohort Collaboration (ART–CC) is an open prospective cohort of individuals receiving HAART throughout North America and Europe
Clinical Programs

The Clinical Programs conducts research within the context of clinical care at the Providence Health Care Immune Deficiency Clinic (IDC) and at the HIV/AIDS Ward (10-C), both of which are located at St. Paul’s Hospital. The Clinical Programs have the following responsibilities:

Clinical Research
- Design and implement randomized controlled trials (RCTs): The Clinical Research Program has participated in large international trials of investigational ARV drugs, including the protease inhibitors tipranavir and darunavir, the non-nucleoside reverse transcriptase inhibitor etravirine, the CCR5 receptor antagonist maraviroc, and the integrase inhibitor raltegravir.
- Develop strategies for optimizing the use of investigational and newly available antiretrovirals: In 2005, the Clinical Research Program pioneered the use of a novel gas-powered injection system for the subcutaneous administration of the HIV fusion inhibitor enfuvirtide, leading to the recommendation of this mode of administration in international therapeutic guidelines.
- Examine pharmacokinetics of ARV drugs: The Clinical Research Program continues to work in concert with the research laboratory to study the complex issues of pharmacokinetic interactions among antiretrovirals and between antiretrovirals and co-administered drugs.
- Study treatment and complications of HCV and HBV co-infections.
- Undertake observational studies of HIV-related immune reconstitution syndromes.
- Surveillance of side effects and toxicities of investigational and newly available antiretrovirals: The Clinical Research Program was one of the first groups to recognize the potential for significant renal toxicity with tenofovir and the risk factors associated with this toxicity.

Therapeutic Guidelines
The BC HIV/AIDS Therapeutic Guidelines are part of the BC-CfE’s ongoing commitment to bringing forward the most current information and research regarding best practices for treating HIV/AIDS. Therapeutic Guidelines allow physicians throughout the province to become more actively involved in all aspects of prescribing and monitoring anti-HIV drug treatment regimens for their patients.

The guidelines are a consensus of the BC-CfE’s Therapeutic Guidelines Committee, which is made up of physicians, pharmacists, virologists, health service researchers, community representatives and economists. This information represents the committee's interpretation of current treatment of HIV/AIDS and related conditions. The guidelines are reviewed quarterly and revisions are mailed to physicians throughout the province.

Clinical Consultants
The clinical program works closely with PHC staff who are retained by the BC-CfE as clinical consultants on a part time basis to enhance the clinical knowledge related to this and other care programs within the BC-CfE.
Clinical Education and Training Program

The BC-CfE provides HIV/AIDS clinical education and training to health care professionals throughout BC and from other parts of Canada and abroad via:

- Academic undergraduate and graduate level courses
- Continuing education courses
- On-site training / refresher courses
- Resource centre for health care organizations / professionals
- HIV/AIDS physician preceptorship at the BC-CfE and Immune Deficiency Clinic (IDC)
- Educational events (e.g. rounds, HIV biannual update, physician’s support)

Owing to the complexity of HIV care, the BC-CfE has developed programs to educate health care professionals in the treatment of HIV patients. Education is essential to improving treatment and care of HIV patients. The BC-CfE’s professional HIV/AIDS education-based activities include:

HIV/AIDS Nursing Elective
The BC-CfE coordinates an undergraduate course in HIV/AIDS (N410M), which is offered in-class and online at the University of British Columbia’s School of Nursing. The elective is available to senior UBC nursing students and nurses practicing in HIV care across BC.

Inter-professional Elective in HIV/AIDS Prevention and Care
The BC-CfE coordinates an undergraduate course in HIV/AIDS at UBC's College of Health Disciplines (IHHS 402), which is open to students in medicine, nursing, pharmacy, social work and nutrition.

Inter-disciplinary HIV/AIDS Health Sciences Elective
The BC-CfE coordinates a graduate course in HIV/AIDS at the Faculty of Health Sciences at Simon Fraser University (HSCI 471), which is open to inter-disciplinary students enrolled in graduate studies.

AIDS Care Rounds
The BC-CfE provides a free lecture twice a month at St. Paul’s Hospital, which is directed toward health care professionals treating and managing HIV/AIDS patients. The rounds are uploaded and available on BC-CfE’s website.

ABC Educational Program
This is a basic HIV/AIDS educational program for health care professionals and the community that travels across the province. The program is coordinated in collaboration with the BC Persons with AIDS Society (BCPWA).
Educational Sessions

The BC-CfE conducts educational outreach to nursing schools at colleges throughout Vancouver Coastal and Vancouver Island Health Authorities. Educational sessions are tailored to the needs of health care professionals and students.

Preceptorship Program at IDC (post-graduate level)

The BC-CfE has developed a post-graduate HIV/AIDS Preceptorship Program for physicians and family practice residents. The program consists of a 3-month rotation or equivalent time at the IDC at SPH. Physicians participate in the primary care of HIV patients in the IDC under the direction of an experienced HIV physician and are exposed to an inter-professional approach to the management of HIV/AIDS. Physicians spend half of the time in the primary care clinic and the other half in elective HIV specialist clinics, the outpatient pharmacy, the AIDS inpatient ward, research clinics, and teaching rounds.

Treatment Algorithm

The BC-CfE has developed an HIV treatment algorithm to facilitate physicians’ clinical decision making regarding ARV prescription, management of adverse events, drug resistance and other clinical issues. This algorithm will complement the BC-CfE’s Therapeutic Guidelines and is accessible to health care providers via the BC-CfE website.

Web-based HIV/AIDS network & E-learning

In early 2006, the BC-CfE launched an interactive, web-based HIV/AIDS network for physicians. The website allows physicians to pose difficult cases or questions and receive advice from virtual mentors. It promotes self-directed learning by referring users to other HIV-related web sites. The BC-CfE proposes to expand this web-based HIV/AIDS network to other health care providers (e.g. nurses, pharmacists, psychologists, social workers, and nutritionists), and to include new inter-professional E-learning curricula and specialized virtual mentors.

Inter-professional HIV/AIDS information CD

As a complement to its proposed expansion of E-learning, the BC-CfE intends to develop an inter-professional HIV/AIDS information CD that can be distributed, on request, to health care providers throughout BC. This CD would include the BC-CfE Therapeutic Guidelines and information for pharmacists, nurses, social workers, nutritionists and psychologists.

Newsletter

The BC-CfE disseminates epidemiological, laboratory and clinical research findings on a monthly basis via a newsletter, Forecast. Its current readership of over 4,000 associates includes: health care providers, media, government stakeholders, pharmaceutical companies, academic agencies and community groups.
**Drug Treatment Program (DTP)**

The DTP was established in 1992 and has a provincial mandate to distribute ARV drugs based on guidelines generated by the Therapeutic Guidelines Committee. The Committee is made up of physicians, pharmacists, virologists, health service researchers and economists. The *HIV/AIDS Therapeutic Guidelines* are formed by consensus by the BC-CfE Therapeutic Guidelines Committee. This information represents the Committee's interpretation of current treatment of HIV/AIDS and related conditions. The Guidelines are reviewed quarterly and revisions are mailed to physicians throughout the province.

The DTP is supported financially by Pharmacare, a division of the BC MoHS. ARVs are distributed free of charge to HIV-positive residents of BC. As of the end of 2009, 9,344 HIV-positive individuals had accessed ARV's through the BC-CfE’s DTP. Information from all recipients is entered into a database, providing data for clinical and virological outcome studies of patients receiving antiretrovirals. These studies form the basis of further revisions to the guidelines. The DTP database acts as a registry of HIV- treating physicians in the province. The BC-CfE also has acted as an “early warning system” to alert government of the trajectory of the disease.

The BC-CfE employs perhaps the most innovative, integrated research and treatment model in Canada and ranks among the best in the world. This model of management and delivery has allowed residents of BC who are HIV positive to have the fastest access to the best HIV care possible. The program consists of a director, statisticians, data analysts, researchers, research assistants, program managers, program assistants, data clerks and support staff. Responsibilities include: input data related to the DTP, analyze data from DTP, provide information in relation to the DTP to stakeholders on a regular basis, collaborate with operations to support development of annual DTP budget and provide statistical information related to the DTP.

The BC-CfE Pharmacovigilance Patient Quality and Safety initiative is a significant support to the DTP. It is responsible for collecting, evaluating, and analyzing reports of drug toxicity and uses this information to understand and prevent drug-related problems. All drugs are tested for safety before they are approved for sale in Canada; however, the pre-marketing clinical trials cannot study enough patients to be able to detect adverse drug reactions that are rare, take a long time to develop, or mainly affect particular groups of patients (e.g. women, seniors, or specific ethnic groups).

These toxicities are usually discovered after a drug is used in the general population. Ongoing monitoring of adverse drug reactions is required to detect unexpected toxicities as soon as possible, so health care providers and patients can be warned of new safety concerns.
Addictions and Urban Health

The Addiction and Urban Health conducts population-based research on HIV/AIDS and related diseases among urban populations and those suffering addiction. Currently this program includes several funded cohort studies involving IDUs and street-involved youth, an ethnography program and health services evaluation studies, including:

- **Vancouver Injection Drug User Study (VIDUS – I & II)** - VIDUS is a prospective cohort of 1,500 IDUs enrolled between 1996 and 2005. In 2005 the BC-CfE split the VIDUS cohort in two whereby all HIV-negative participants became part of a new prospective cohort called VIDUS II and all HIV-positive participants became part of a separate open prospective cohort called ACCESS

- **AIDS Care Cohort to Evaluate Access to Survival Services (ACCESS –I)** was created in 2005 from the original VIDUS cohort and includes HIV-positive IDUs. In 2009 the cohort was opened up to HIV-positive drug users

- **Community Health and Safety Evaluation (CHASE)** - CHASE is a retrospective cohort of DTES residents and contains 3,850 individuals recruited between January 2003 and December 2004

- **MAKA** - is an open prospective cohort of female sex workers in the DTES, which was originally recruited in 2004

- **At-Risk Youth Study (ARYS)** is an open prospective cohort of street-involved HIV-negative youth, which began recruitment in 2005

- **Scientific Evaluation of the Safe Injection (SEOSI)** is a closed cohort of IDUs who access North America’s only safer injection facility, Insite

Gender and Sexual Health Initiative

Newly launched, the Gender and Sexual Health Initiative (GSHI) highlights the critical need to address issues of gender and sexual health in the response to HIV. Globally, HIV is the leading cause of mortality among women of reproductive age.

The Gender and Sexual Health Initiative brings together research collaborations to evaluate the intersecting interpersonal, social, physical, and policy environments shaping sexual health, HIV/STIs and access to care among marginalized women and sex workers both locally and internationally. The initiative bridges public health, policy, social epidemiology, and qualitative research, and aims to move forward evidence-based and gender-focused HIV prevention, treatment and care.
The BC-CfE took the lead in fundraising for the leadership Chair in Addictions. The BC-CfE recognized the need to anchor the clinical addictions program at PHC by recruiting an addictions specialist with a proven research track record. The money raised by the BC-CfE along with a single large donation made by a private donor to the foundation provided all the matching funds for the leadership chair.
7. SEEK AND TREAT FOR OPTIMAL PREVENTION OF HIV/AIDS (STOP HIV/AIDS)

Impact of HAART on HIV Transmission

In the summer of 2006, the BC-CfE published the results of a year’s worth of work in the area of HIV prevention (Montaner JSG, et al. The case for expanding access to highly active antiretroviral therapy to curb the growth of the HIV epidemic. Lancet 2006; 368:531-36). In brief, following discussions with the Ministry of Health (MoH), it became apparent that the rate of expansion of the Drug Treatment Program (DTP) was a source of concern. The cost-effectiveness of HAART came under scrutiny. The BC-CfE responded by conducting an extensive review of the clinical, epidemiological, and cost impacts of expanding HAART access, including a review of data from its DTP linked to BC-CDC data.

The BC-CfE found a compelling body of research from around the world that, taken together, showed that expanded HAART access could play an important role in reducing the transmission of HIV in a regional population and at the same time reduce HIV/AIDS-related morbidity and mortality. Turning then to its DTP, the BC-CfE found that for every dollar spent on HAART in BC, two dollars in lifetime HIV therapy was averted. Specifically, in 2005 the BC-CfE estimated that $50M spent within the DTP averted $100M in lifetime therapy cost within BC.

These findings led the BC-CfE to examine what the potential epidemiological and cost impacts would be if HAART access were expanded to 100% of clinically eligible HIV-positive individuals in BC. Based on data from the DTP, the BC-CfE developed a semi-deterministic dynamic model that predicted expanded access to HAART to 75%, 90% and 100% of clinically eligible British Columbians would prevent, respectively, 3,108, 4,776, and 5,701 new HIV infections over 25 years. The same model also predicted that expanded HAART uptake would avert between approximately US$ 762 million and US$ 2.1 billion in total lifetime direct treatment costs (Lima VD, et al. JID 2008).

This hypothetical construct motivated the BC-CfE to redevelop its research agenda under the theme of “Expanding HAART to Curb the Growth of the HIV Epidemic”. While continuing to promote traditional HIV prevention strategies, the BC-CfE proposes to expand HAART access to decrease HIV/AIDS-related mortality in BC, and, secondarily, to evaluate the impact of such expansion on the number of new infections (HIV incidence) in BC over six years. The latter will be evaluated as part of an internationally innovative research program to Seek and Treat for Optimal Prevention of HIV/AIDS (STOP HIV/AIDS), which has now received a US$ 2.5 million Avant Garde Award from the US National Institute of Drug Abuse of the National Institutes of Health.

In order to facilitate this evolution of the STOP HIV/AIDS initiative, the BC-CfE, with the support of the provincial government, has initiated a concerted effort to increase HAART coverage among those in medical need based on the most recent guidelines within BC, with the special emphasis on engaging hard-to-reach individuals. The BC government approved a pilot
project (2009) in Vancouver’s DTES and Prince George, with $48 million dollars of new funding over four years. The funding has been allocated to Vancouver Coastal Health (VCH), Provincial Health Services Authority (PHSA), Providence Health Care (PHC), Northern Health (NH) and the BC Centre for Excellence in HIV/AIDS (BC-CfE). The Vancouver Coastal Health Authority has developed a plan in which the number of HAART-eligible HIV positive individuals taking treatment would be increased by 50%. This approach was endorsed following a process of broad consultations with stakeholders, including community groups, physicians, health officials, social service agencies and addiction specialists. The implementation of the STOP HIV/AIDS Program requires close collaboration among governmental, community and academic partners (See Section 8) in areas such as HIV testing, physician education, drug delivery, counseling and outcomes assessment. It is anticipated that the STOP HIV/AIDS Program will eventually be expanded to other areas of BC, under close monitoring and evaluation by the BC-CfE.

**Aims of the STOP HIV/AIDS Initiative**

All of the Aims for the STOP HIV/AIDS represent a natural extension of work already being done by the BC-CfE.

**Primary Aims**

- **Aim 1:** To enhance HIV case finding in BC
- **Aim 2:** To increase the number of HIV-positive people accessing care
- **Aim 3:** To increase the number of HIV-positive people on HAART, consistent with the Therapeutic Guidelines
- **Aim 4:** To monitor HIV/AIDS related morbidity and mortality and HIV incidence in BC

**Secondary Aims**

- **Aim 5:** To monitor drug adherence, resistance, and adverse events
- **Aim 6:** To expand health care capacity to support HAART
- **Aim 7:** To monitor population impact, resource utilization and cost-effectiveness associated with expansion of HAART access
- **Aim 8:** To model the potential impacts of further HAART expansion in BC
8. COLLABORATIONS AND PARTNERSHIPS

Collaborations

PHC-Research Institute
St. Paul’s Hospital PHC, is a university teaching hospital affiliated with UBC. St. Paul’s PHC established a PHC-Research Institute in 2004. The vision of the PHC-Research Institute is to improve the treatment and overall health of patients and residents at PHC and beyond through relevant, ethical and inspired health research. This is fully consistent with the goals of the BC-CfE. Research expertise includes laboratory, clinical, and epidemiological research in the fields of HIV/AIDS, heart disease, renal disease, gastro-intestinal diseases, psychiatry, and geriatrics. Adherence to PHC and UBC's research policies ensures the quality of the research conducted.

PHC-Virology Laboratory Services
Laboratories at PHC provide routine and specialized diagnostic services (including CD4 counts and viral load testing) and consultation to many health providers within BC and the Yukon with respect to HIV. In addition to acute inpatient services, a significant portion of laboratory work comes from outpatient clinics, physicians' offices, community clinics, long-term care, extended care and rehabilitation centres. Linkages with the PHC laboratories ensure that the BC-CfE gains real-time access to critical patient monitoring data.

PHC-Outreach Pharmacy
The ambulatory pharmacy’s operation is program-based and provides service to the BC-CfE as well as the BC Transplant Society and BC Cancer Agency programs. The bulk of the work carried out in the pharmacy is for the HIV/AIDS program. The pharmacy acts as the central depot for receiving and distributing ARVs throughout the province. The BC-CfE funds selected HIV/AIDS medications including ARVs, staff, courier and other costs associated with the BC-CfE DTP. This program is funded through a contract with Pharmacare.

To better meet the needs of patients throughout the province, a number of offsite pharmacies have been established in larger communities (Victoria, Nanaimo, Kelowna) and at specialty sites (BC Children’s Hospital and Women’s Hospital, Provincial Distribution Centre, Downtown Community Health Clinic/VCH). All of the off-site pharmacies order bulk ARVs from SPH’s ambulatory pharmacy and dispensed to patients in their geographical area. All copies of prescriptions dispensed, as well as inventory counts, are couriered to the SPH pharmacy on a weekly basis. SPH pharmacy technicians are responsible for ensuring that inventory counts are balanced and that all prescriptions are entered into the SPH pharmacy database.

The SPH pharmacy is responsible for maintaining a 24-hour, toll-free phone line for patients and health-care providers. Pharmacists provide information on a wide variety of topics related to the DTP and ARVs.
In addition, the BC-CfE is responsible for the BC-HIV Accidental Exposure Program, which provides ARVs to eligible individuals throughout BC. The Guidelines for this program are the responsibility of the BC-CfE Committee on Accidental Exposures. All follow-up HIV accidental exposure calls for the province are directed to the above-mentioned 24-hour, toll-free phone line for patients and health-care providers. Calls are received from emergency departments when assessing an exposure and from family physicians and other health-care providers after an exposure has occurred.

ARVs are also dispensed directly from the SPH pharmacy to clients in one of three ways:
1. Clients who live close to SPH, or who prefer to come to SPH, book scheduled appointments with a clinical pharmacist (Grade II) to receive their ARVs
2. Patients at high risk for incomplete adherence receive their medications through a limited number of outreach (community) pharmacies or clinics often in tandem with other prescriptions (e.g. methadone)
3. Medication can be couriered directly to physician’s offices, as required

**PHC-John Ruedy Immunodeficiency Clinic (IDC)**

The IDC was established in the late 1980s in response to the AIDS epidemic, given that little effective ARV therapy was available at that time. The main focus of the clinic at that time was management of opportunistic infections, palliative care and research. In 2002, the BC-CfE conducted a needs assessment that indicated the need to redesign the clinic to address emerging health needs of the HIV-infected population. In 2003, the IDC was redesigned with a new focus to provide a broad range of primary and specialty HIV care services to address the identified needs of individuals who did not receive appropriate ongoing care in other venues. The BC-CfE, in partnership with PHC and VCH, committed funding for the re-design and expansion of services, and in 2005 PHC assumed primary funding and operational responsibilities for the IDC.

The BC-CfE provides a significant subsidy to the IDC, including financial support to the Medical Director, Assistant Medical Director and Clinic Coordinator. These BC-CfE staff members together provide the necessary clinical and administrative expertise to ensure the quality and efficiency of services delivered at the IDC. In addition, the BC-CfE provides financial support for the provision of an on-call physician for patients seeking medical advice after clinic hours and funding for the management of the IDC HIV primary care database, the therapeutic drug monitoring program, the anal dysphasia clinic, other specialty clinics, all of the clinical research activities and the educational events for the IDC staff.

**PHC-Inpatient HIV/AIDS Care (10-C)**

The inpatient HIV Ward (10-C) was opened in February 1997 and was expanded from 17 to 20 beds in March 2006. During this nine-year period, there have been approximately 400 admissions to the ward annually. Currently, approximately 70% of the patients admitted to the ward are active or previous IDUs. The medical diagnoses accounting for hospitalizations include HIV-related opportunistic infections, malignancies, injection-drug-use-related infections (e.g. cellulitis, endocarditis, osteomyelitis), complications of chronic liver disease (e.g. HCV, HBV) and adverse effects related to antiretroviral therapy. The ward provides a multidisciplinary service and has
linkages with various other care facilities and support groups in the community. Various policies and procedures have been developed that are specific for HIV/AIDS care. The ward has attracted trainees from across the country at all levels of undergraduate and postgraduate training. It also serves as a clinical site for students from the UBC HIV/AIDS nursing and inter-professional electives.

**Partnerships**

The BC-CfE has identified as a core value the importance of developing collaborative partnerships and alliances that seek to achieve common, focused, attainable goals. The BC-CfE firmly believes that engaging in an open dialogue with all partners where concepts of change, challenge, risk-sharing and understanding a new way of doing business will increase our collective chances of significantly reducing the transmission of HIV/AIDS and improving care for those living with HIV/AIDS.

The BC-CfE has cultivated numerous provincial, national and international partners including governmental, community-based, academic, and private organizations and other HIV/AIDS stakeholders.

**Provincial**

**Government**
- Fraser Health Authority
- Interior Health Authority
- Northern Health Authority
- Provincial Health Services Authority
  - BC Cancer Agency
  - BC Centre for Disease Control
  - BC Women’s and Children’s Hospital
  - Oak Tree Clinic
- Vancouver Coastal Health Authority
  - Downtown Community Health Centre
- Vancouver Island Health Authority

**Community-based organizations**
- AIDS Vancouver Society
  - Keeping the Door Open
- Asian Society for the Intervention of AIDS (ASIA)
- BC Persons With AIDS Society
- BC Positive Women’s Network/Society
- Carnegie Hall Community Centre
- Downtown Eastside Youth Activities Society (DEYAS)
- Dr. Peter Centre
- Healing Our Spirit, BC Aboriginal HIV/AIDS Society
- Insite
- Pacific AIDS Network
- Portland Hotel Society
- Positive Women’s Network
- Red Road
- Vancouver Native Health Society
- Women’s Information Safe House

Universities
- Simon Fraser University
- University of British Columbia
- University of Northern British Columbia
- University of Victoria

National

Universities
- McGill University
- McMaster University
- University of Calgary
- University of Montreal
- University of Toronto
- University of Western Ontario

International

Universities
- University of California San Francisco, USA
- University of California San Diego, USA
- Johns Hopkins University, USA
- Harvard University, USA
- London School of Hygiene and Tropical Medicine, UK
- Makerere University, Uganda
- University of Mbarara, Uganda
- Oswaldo Cruz Foundation (FIOCRUZ), Brazil
- University of Witwatersrand, South Africa
- University of Buenos Aires, Argentina

International aid and policy agencies
- International AIDS Society (IAS)
- Joint United Nations Programme on HIV/AIDS (UNAIDS)
- World Health Organization
9. STRATEGIC GOALS, OBJECTIVES & ACTIVITIES

Strategic Goal 1

Improve the health of British Columbians with HIV through the development, ongoing monitoring, and dissemination of comprehensive research and treatment programs for HIV and related diseases.

Objective 1

Expand HAART access within the scope of the Therapeutic Guidelines.

Activities
- Support BC-CDC initiatives to increase HIV testing and partner notification
- Promote rapid HIV testing (where appropriate)
- Support Health Authorities to increase capacity to provide HIV/AIDS care
- Optimize medical assessment and referral throughout PHC/BC-CfE initiatives
- Develop new BC-CfE cohorts targeting specific populations
- Expand the DTP to accommodate expansion of HAART
- Develop expertise in addiction treatment and treatment of mental illness
- Enhance clinical trial support
- Support the development of an HIV vaccine and prevention trials

Objective 2

Maintain the BC-CfE Therapeutic Guidelines for the Management of HIV and Related Diseases as a state of the art document generated by an inter-professional panel of experts.

Activities
- Review and revise Therapeutic Guidelines as per the terms of reference
- Disseminate changes to practitioners

Objective 3

Disseminate research findings to policy makers, practitioners, public health professionals, Health Authorities, community groups, HIV-positive individuals, researchers and the general public.

Activities
- Publish research findings in peer-reviewed journals and conferences
- Facilitate knowledge transfer by organizing lecture series, seminars, and updates
- Optimize the use of existing knowledge-transfer tools (e.g. Forecast, website, distance education, etc.)
- Disseminate via membership on provincial, national and international committees

Objective 4

Provide regular briefings and submissions to Government stakeholders and policy makers, both provincial and national.

Activities
- Continue to work closely with BC MoHS
- Establish partnerships with the Federal Government and federal agencies
**Strategic Goal 2**

Develop cost-effective research and therapeutic protocols and programs for the treatment of HIV and related diseases.

**Objective 1**
Expand BC-CfE Laboratory capabilities in virology of drug resistance, immunology, pharmacology, Human Geonomics and bioinformatics.

*Activities*
- Increase Laboratory space/equipment/staff
- Recruit additional expertise in immunology, pharmacology, Human Geonomics and bioinformatics

**Objective 2**
Develop tools and protocols to predict (and minimize) drug resistance and adverse events

*Activities*
- Enhance tools to monitor prescription and usage of ARV medications in real time
- Enhance capacity for ARV adherence research
- Develop clinical research programs targeting vulnerable and hard-to-reach populations

**Objective 3**
Monitor clinical and epidemiological impacts of HIV/AIDS and related diseases in BC

*Activities*
- Characterize emergent HIV infections and AIDS cases
- Monitor HIV/AIDS and HAART-related morbidity, mortality, and resource utilization
- Measure local, national and international impacts of expanded HAART access

**Objective 4**
Develop a health economics initiative within the BC-CfE

*Activities*
- Recruit a health economist with a focus on HIV/AIDS

**Objective 5**
Develop a health policy initiative within the BC-CfE

*Activities*
- Recruit a health policy researcher with a focus on HIV/AIDS

**Objective 6**
Implement a Knowledge Translation Initiative with the BC-CfE

*Activities*
- Build in knowledge translation as part of the BC-CfE communications strategy
**Strategic Goal 3**

Enhance capacity to deliver HIV/AIDS education and training to health and human service professionals.

**Objective 1**
Initiate and collaborate on the development and implementation of educational initiatives for the health and human service professionals

*Activities*
- Consolidate educational initiatives under one directorship
- Develop a proposal for PHC to acquire additional space to support increasing educational opportunities

**Objective 2**
Support health and human service professionals in the delivery of treatment and care at all stages of HIV disease

*Activities*
- Continue collaboration with UBC to provide existing and new undergraduate, graduate and doctoral nursing and inter-professional HIV/AIDS education programs:
  - UBC, School of Nursing, *N410M HIV/AIDS Prevention and Care*
  - UBC, College of Health Disciplines, *IHHS 402 HIV/AIDS Prevention and Care*
  - Develop new electives in HIV/AIDS for students in Health and Human Services
  - Develop new electives in urban health, addiction and psychiatry
  - Expand access to on-site preceptorship training for UBC medical residents
- Expand access to HIV/AIDS on-site training and refresher courses for health and human service professionals
- Establish an online clinical mentorship program for inter-disciplinary health care professionals in HIV/AIDS care

**Objective 3**
Strengthen linkages with universities and other academic institutions

*Activities*
- Create a UBC Senate-approved BC-CfE in HIV/AIDS Centre
- Collaborate with other BC universities to expand access to HIV/AIDS education programs for health and human service students
- Increase HIV/AIDS capacity at the Simon Fraser University Faculty of Health Sciences
## 10. PERFORMANCE INDICATORS

### Performance Indicators for Strategic Goal 1

*Improve the health of British Columbians with HIV through the development, ongoing monitoring, and dissemination of comprehensive research and treatment programs for HIV and related diseases.*

<table>
<thead>
<tr>
<th>OBJECTIVES &amp; ACTIVITIES</th>
<th>PERFORMANCE INDICATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OBJECTIVE 1</strong></td>
<td></td>
</tr>
<tr>
<td>Expand HAART access within the scope of the Therapeutic Guidelines</td>
<td>Collaboration established with BCCDC</td>
</tr>
<tr>
<td><strong>Activities</strong></td>
<td></td>
</tr>
<tr>
<td>▪ Support BC-CDC initiatives to increase HIV testing and partner notification</td>
<td>HIV rapid testing devices used to diagnose HIV in outreach clinics</td>
</tr>
<tr>
<td>▪ Promote rapid HIV testing (where appropriate)</td>
<td>BC-CfE STOP HIV/AIDS Leadership Committee established</td>
</tr>
<tr>
<td>▪ Support Health Authorities to implement HIV strategic plans and increase capacity to provide HIV/AIDS care</td>
<td>DTP linkages established with SPH-IDC and 10-C, Oak Tree Clinic, Vancouver Native Health Society, BCCDC</td>
</tr>
<tr>
<td>▪ Optimize medical assessment and referral throughout PHC/BC-CfE initiatives</td>
<td>New cohorts established focusing on Aboriginals, MSM, immigrants from HIV/AIDS-endemic countries, incarcerated persons, sex trade workers</td>
</tr>
<tr>
<td>▪ Develop new BC-CfE cohorts targeting specific populations</td>
<td>Additional support staff hired</td>
</tr>
<tr>
<td>▪ Expand the DTP to accommodate expansion of HAART</td>
<td>Addiction Chair established at UBC/PHC</td>
</tr>
<tr>
<td>▪ Develop expertise in addiction treatment</td>
<td>Additional support staff hired</td>
</tr>
<tr>
<td>▪ Enhance clinical trial support</td>
<td>Collaborations established with relevant pharmaceuticals and federal government initiatives</td>
</tr>
<tr>
<td>▪ Support HIV vaccine and prevention trials</td>
<td></td>
</tr>
</tbody>
</table>

BC-CfE Strategic Plan 39
OBJECTIVE 2
Maintain the BC-CfE Therapeutic Guidelines for the Management of HIV and Related Diseases as a state of the art document generated by an interprofessional panel of experts

Activities
- Review and revise Therapeutic Guidelines annually
- Disseminate changes to practitioners

- Therapeutic Guidelines reviewed annually and revised as determined by the committee
- Changes to the Therapeutic Guidelines are mailed to practitioners and posted on the BC-CfE website

OBJECTIVE 3
Disseminate research findings to policy makers, practitioners, public health professionals, health authorities, community groups, HIV-positive individuals, researchers and the general public

Activities
- Publish research findings in peer-reviewed journals and present at national/international conferences
- Facilitate knowledge transfer by organizing lecture series, seminars, and updates
- Optimize the use of existing knowledge transfer tools (e.g. Forecast, website, distance education, etc.)
- Utilize membership on provincial, national, and international committees for the purpose of sharing information

- Research findings published in peer-reviewed journals, and presented at relevant conferences
- Bi-annual ARV updates, HIV/AIDS Care Rounds, Forefront Lectures, coordinated by BC-CfE
- *Forecast* newsletter readership expanded, website updated, treatment algorithm for physicians disseminated throughout BC, inter-professional HIV/AIDS CD distributed on an on-call basis
- Research findings shared at Health Authority and community stakeholder meetings, Canadian Association for HIV/AIDS Research, International AIDS Society
**OBJECTIVE 4**

Provide regular briefings and submissions to Government stakeholders and policy makers, both provincial and national

**Activities**

- Continue to work closely with BC MoHS and MoHL&S
- Establish partnerships with the Federal Government and federal agencies

**Activities**

- Collaboration continued with government representatives of the MoHS (eg. Pharmacare), MoHL&S, Blood Borne Pathogens, Communicable Diseases and Addiction and Prevention Group, Population Health and Wellness
- Partnerships established with Public Health Agency of Canada, Health Canada
Performance Indicators for Strategic Goal 2

*Develop cost-effective research and therapeutic protocols and programs for the treatment of HIV and related diseases.*

<table>
<thead>
<tr>
<th>OBJECTIVES &amp; ACTIVITIES</th>
<th>PERFORMANCE INDICATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OBJECTIVE 1</strong></td>
<td></td>
</tr>
<tr>
<td>Expand BC-CfE Laboratory capabilities in virology of drug resistance, immunology, pharmacology, Human Genomics and bioinformatics.</td>
<td></td>
</tr>
<tr>
<td><strong>Activities</strong></td>
<td></td>
</tr>
<tr>
<td>▪ Increase BC-CfE Laboratory staff/space/equipment</td>
<td>▪ New laboratory staff hired, Research Laboratory space renovated and expanded, new equipment purchased</td>
</tr>
<tr>
<td>▪ Recruit additional expertise in virology, immunology, pharmacology, Human Genomics and bioinformatics</td>
<td>▪ Doctoral and post-doctoral researchers hired</td>
</tr>
<tr>
<td>▪ New laboratory staff hired, Research Laboratory space renovated and expanded, new equipment purchased</td>
<td>▪ Production of peer-reviewed work in these areas with associated grant funding</td>
</tr>
</tbody>
</table>

<p>| <strong>OBJECTIVE 2</strong>         |                       |
| Develop tools and protocols to predict (and minimize) drug resistance and adverse effects |                       |
| <strong>Activities</strong>          |                       |
| ▪ Enhance tools to monitor prescription and usage of ARV medications in real time | ▪ Clinical surveillance systems with embedded Therapeutic Guidelines developed |
| ▪ Enhance capacity for adherence research | ▪ Adherence research initiatives expanded |
| ▪ Develop clinical research programs targeting vulnerable and hard-to-reach populations | ▪ Clinical research program targeting Aboriginals, IDUs, MSM, sex-workers, street youth established |</p>
<table>
<thead>
<tr>
<th>OBJECTIVE 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OBJECTIVE 3</strong></td>
<td>Monitor clinical and epidemiological impacts of HIV/AIDS and related diseases in BC</td>
</tr>
<tr>
<td><strong>Activities</strong></td>
<td></td>
</tr>
<tr>
<td>▪ Characterize new emerging HIV infections and AIDS cases</td>
<td>▪ New emerging HIV infections and AIDS cases characterized</td>
</tr>
<tr>
<td>▪ Monitor HIV/AIDS and HAART-related morbidity, mortality and resource utilization</td>
<td>▪ Comprehensive patient and population data collected about HIV/AIDS and HAART-related morbidity, mortality and resource utilization</td>
</tr>
<tr>
<td>▪ Measure local, national and international impacts of expanded HAART access</td>
<td>▪ Local, national and international impacts of expanded HAART access measured</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>OBJECTIVE 4</td>
<td></td>
</tr>
<tr>
<td><strong>OBJECTIVE 4</strong></td>
<td>Develop a health economics initiative within the BC-CfE</td>
</tr>
<tr>
<td><strong>Activities</strong></td>
<td></td>
</tr>
<tr>
<td>▪ Recruit a health economist with a focus on HIV/AIDS</td>
<td>▪ Health economist with HIV/AIDS focus hired</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>OBJECTIVE 5</td>
<td></td>
</tr>
<tr>
<td><strong>OBJECTIVE 5</strong></td>
<td>Develop a health policy initiative within the BC-CfE</td>
</tr>
<tr>
<td><strong>Activities</strong></td>
<td></td>
</tr>
<tr>
<td>▪ Recruit a health policy researcher with a focus on HIV/AIDS</td>
<td>▪ Health policy researcher with HIV/AIDS focus hired</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>OBJECTIVE 6</td>
<td></td>
</tr>
<tr>
<td><strong>OBJECTIVE 6</strong></td>
<td>Implement a Knowledge Translation Initiative with the BC-CfE</td>
</tr>
<tr>
<td>Activities</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>---</td>
</tr>
<tr>
<td>Build in knowledge translation as part of the BC-CfE communications strategy</td>
<td>BC-CfE Communications strategy provides knowledge translation as a key component</td>
</tr>
</tbody>
</table>
Performance Indicators for Strategic Goal 3

Enhance capacity to deliver HIV/AIDS education and training to health and human service professionals at provincial, national and international levels.

<table>
<thead>
<tr>
<th>OBJECTIVES &amp; ACTIVITIES</th>
<th>PERFORMANCE INDICATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OBJECTIVE 1</strong></td>
<td></td>
</tr>
<tr>
<td>Initiate and collaborate on the development and implementation of educational initiatives for the health and human service professionals</td>
<td>One educational initiative established and supported by human and financial resources</td>
</tr>
<tr>
<td><strong>Activities</strong></td>
<td>Proposal developed for PHC to support additional space at SPH</td>
</tr>
<tr>
<td>▪ Consolidate educational initiatives under one directorship</td>
<td></td>
</tr>
<tr>
<td>▪ Develop a proposal for PHC to acquire additional space to support increasing educational opportunities</td>
<td></td>
</tr>
<tr>
<td><strong>OBJECTIVE 2</strong></td>
<td></td>
</tr>
<tr>
<td>Support health and human service professionals in the delivery of treatment and care at all stages of HIV disease</td>
<td></td>
</tr>
<tr>
<td><strong>Activities</strong></td>
<td>UBC-College of Health Disciplines, IHHS 402 HIV/AIDS Prevention and Care, UBC-School of Nursing, N410M HIV/AIDS Prevention and Care courses continue</td>
</tr>
<tr>
<td>▪ Continue to collaborate with UBC to provide undergraduate and postgraduate nursing and inter-professional HIV/AIDS education programs</td>
<td></td>
</tr>
<tr>
<td>▪ Expand access to HIV/AIDS on-site training and refresher courses for health and human service professionals</td>
<td></td>
</tr>
<tr>
<td>▪ Capacity increased at regional level for inter-professional delivery of HIV/AIDS care, and for physician prescribing of ARVs</td>
<td></td>
</tr>
<tr>
<td>Liaise with health authorities to develop or sponsor regional educational activities</td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td></td>
</tr>
<tr>
<td>Establish an online clinical mentorship program for inter-professional health care professionals in HIV care</td>
<td></td>
</tr>
<tr>
<td>Collaborate with UBC College of Health Disciplines to develop electives in urban health, addiction and psychiatry</td>
<td></td>
</tr>
<tr>
<td>Expand access to HIV/AIDS education to health and human service professionals in Provincial Corrections and Correction Service Canada</td>
<td></td>
</tr>
<tr>
<td>Expand access to UBC School of Nursing HIV/AIDS elective (N410M) for nurses across the province</td>
<td></td>
</tr>
<tr>
<td>Expand access to HIV on-site preceptorship training for clinicians</td>
<td></td>
</tr>
<tr>
<td>Continue to offer educational opportunities nationally and internationally</td>
<td></td>
</tr>
<tr>
<td>Financial commitment obtained from health authorities to support inter-professional education</td>
<td></td>
</tr>
<tr>
<td>Inter-professional mentorship program established</td>
<td></td>
</tr>
<tr>
<td>Electives in urban health, addiction and psychiatry established at UBC</td>
<td></td>
</tr>
<tr>
<td>HIV/AIDS education program established for health and human service professionals in Provincial Corrections and Correction Service Canada</td>
<td></td>
</tr>
<tr>
<td>Admittance to UBC School of Nursing (N410M) increased</td>
<td></td>
</tr>
<tr>
<td>Access to on-site preceptorship training for clinicians increased</td>
<td></td>
</tr>
<tr>
<td>Educational opportunities offered to international academic and government institutions</td>
<td></td>
</tr>
</tbody>
</table>
### OBJECTIVE 3

Strengthen linkages with universities and other academic institutions

**Activities**
- Create a UBC Senate-approved BC-CfE in HIV/AIDS Centre
- Collaborate with BC universities to expand access to HIV/AIDS education programs for health and human services students
- Increase HIV/AIDS capacity at Simon Fraser University Faculty of Health Sciences

- UBC Senate AIDS Institute approved
- Access to HIV/AIDS Prevention and Care (IHHS 402) established at University of Victoria, University of Northern British Columbia and UBC Okanagan Campus
- Capacity at Simon Fraser University increased
11. RISK FACTORS FOR HIV/AIDS AND VULNERABLE GROUPS IN BC

Risk Factors for HIV/AIDS

Socio-Economic Status

In spite of universal access to health care in Canada, socio-economic status is strongly associated with HIV-related mortality and morbidity. People with unstable housing are known to be at elevated risk of contracting HIV, due to associated risk behaviors (Corneil TA, et al Health Place 2006). Individuals of lower socio-economic status are less likely to initiate HAART (Wood E, et al AIDS 2002; JID 2003), and more likely to be food insecure/malnourished (Normen L, et al Nutrition 2005).

Mental Illness

People with serious mental illnesses often live in poor urban neighborhoods with high rates of drug abuse and STIs, including HIV (Kelly JA, Am J of Psychiatry, 1992). Rates of HIV are extremely high among homeless people with serious mental illness, since they simultaneously belong to other subcultures that are disproportionately infected with HIV, including IDUs, prison inmates, and commercial sex workers. People with serious mental illness are further vulnerable since they are often unable to independently access and/or follow through on obtaining medical care.

Vulnerable Groups in BC

Men who have sex with men (MSM)

At the end of 2002, 29,000 MSM were infected with HIV in Canada, representing 51% of national HIV-infection rates. There were an estimated 4,450 MSM infected with HIV in BC at the end of 2005 (Boulos PHAC 2005). BC-CfE studies have found that MSM are more likely than non-MSM to engage in injection drug use and other risk behaviors (Strathdee S, Clarion 1997). Unprotected anal intercourse is significantly associated with injection drug use, sexual situation-specific use of marijuana, crystal methamphetamine, ecstasy, and ketamine (Rusch M, Sex Transm Dis. 2004). MSM/IDU are likely to be young, HIV-sero-positive, Aboriginal, economically disadvantaged, have unstable housing, and a history of sex trade work and female sexual partners (O’Connell AIDS Behav 2004). There are concerns that MSM in rural areas of BC may face particular obstacles to accessing HIV testing, treatment and care due to concerns about lack of confidentiality, increased stigmatization, and refusal of care from prejudiced or incompetent health practitioners.

Injection Drug Users (IDUs)

IDUs face a disproportionately high rate of HIV transmission compared to other vulnerable groups, accounting for approximately one third of new HIV cases. BC-CfE cohort studies have
found that HIV prevalence among IDUs in the Vancouver DTES ranges from 17% to 25% (Tyndall MW, Harm Reduct J, 2006; Wood AMJP 2008). HIV incidence is particularly elevated among specific groups of IDUs, including: youth and women, Aboriginal, MSM and incarcerated persons. Other HIV risk factors include: binge drug episodes and frequent cocaine use (due to associated sharing of syringes and sex trade work); and relationship with an HIV-positive sex partner. HIV-positive IDUs demonstrate a lower uptake of, and adherence to, HAART compared to other HIV-positive individuals, and consequently have higher rates of AIDS-related morbidity and mortality (Wood E J Infect 2006; Public Health Rep 2005; Kerr JAIDS 2006; Miller Sub Suse Mis use 2006).

Women

At the end of 2008, there were an estimated 11,190 women living with HIV/AIDS in Canada. While this number is relatively low compared to other vulnerable groups, incidence rates are on a dramatic rise in Canada. HIV incidence among women rose 270% from 1987 to 2001, and an additional 23% from 2002 to 2005 (Boulos PHAC 2005). BC-CfE studies have found that female IDUs in Vancouver are 40% more likely to be infected with HIV than male IDUs. 68% of HIV-positive female IDUs report a lifetime history of sexual violence, including child sexual abuse (Braitstein P, Soc Sci Med 2003). Women who engage in sex work are at heightened risk of HIV due to associated behavior, such as use of heroin, smokeable crack cocaine, and borrowing of used syringes.

Aboriginal People

Aboriginal persons continue to be over-represented in the HIV epidemic in Canada. While they only comprise 3.3% of the Canadian population, Aboriginals account for 7.5% of national HIV infections (Boulos PHAC 2005). Compared to non-Aboriginal youth, Aboriginal youth are more likely to test positive for either HIV or HCV, be involved in sex work and live in the city's injection drug use epicenter (Miller CL, Harm Red J 2006). A study in 2001 found that more than 1 in every 100 Aboriginal persons in BC aged 15 years and older is living with HIV/ AIDS (Hogg RS, Harm Red J 2005). Aboriginals are becoming HIV-positive at twice the rate of non-Aboriginals (Craib K, CMAJ 2003). IDU and heterosexual activity account for the majority of HIV transmission among the Aboriginal community. Aboriginal women and youth are particularly hard hit. A 2001 study in Vancouver found that 36.6% of all HIV cases among women are Aboriginals (Spittal PM, CMAJ 2002). Aboriginal ethnicity, female sex and lower median income have shown to be negatively associated with receiving HIV treatment before death (Wood E, JID 2003).

Incarcerated persons

Findings from BC-CfE’s Vancouver Injection Drug Use Study (VIDUS) cohort suggest that incarceration is associated with an increased likelihood of becoming HIV positive, engaging in high-risk syringe sharing, and receiving sub-optimal treatment of HIV infection. VIDUS found that individuals who had recently been incarcerated were 2.7 times more likely to become HIV-positive than those who had never been to jail or prison (Tyndall MW, AIDS 2003). Furthermore,
incarceration is the leading cause of discontinuation of HIV therapy, above competing factors such as intense drug use (Kerr T, AIDS Care 2005). Individuals on HAART who have been incarcerated are 4.8 times more likely to discontinue treatment, compared to those who have never been to prison (Wood E, Pub Health Rep 2005).

Street youth

The term street youth refers to children and adolescents who become socially dislocated from their mainstream counterparts and who experience periodic or chronic homelessness. It is generally believed that a major pathway to this marginal lifestyle is the experience of physical, emotional and/or sexual abuse at home. There are no scientifically valid estimates of the street youth population in Canada, but estimates have ranged as high as 150,000. Studies have shown that almost 50% of street youth inject drugs (Roy Can JID 2000; Gunter CJPH 2000). Needle sharing and unsafe sexual practices are common in this group. Among street youth IDUs, the likelihood of HIV infection is related to lower age, being unemployed and engaging in sex work. Among the VIDUS cohort, HIV prevalence among IDUs, aged 24 years and younger, was found to be 17% (Miller CL CJID 2001).

Immigrants from HIV-endemic countries

Persons from HIV-endemic countries are over-represented in Canada's HIV epidemic. In 2005, the estimated infection rate among individuals from HIV endemic countries was 12.6 times higher than among other Canadians (Boulos PHAC 2005). Immigrants are disproportionately affected by adverse social and economic situations that affect their access to HIV prevention, screening and treatment programs, such as: racism, homelessness, transience, poverty and underemployment. Psychosocial barriers include fear and stigma; denial as a coping mechanism; social isolation; lack of social support; fear of job loss and deportation; discrimination; cultural attitudes and sensitivities about HIV/AIDS transmission, homosexuality, status of women, and sexuality (HIV Endemic Task Force 2003; ICAD 2006).

HIV-Hepatitis C Virus (HCV) co-infection

Injection drug use is the single most important risk factor for acquiring HCV infection in developed countries, and accounts for 85% of HCV prevalence in Canada (PHAC 2006). In 1998, an estimated 52,500 people from BC were living with HCV infection, the highest prevalence in Canada. 1,449 new cases of HCV were identified in the province between January and June 2005 alone (BCCDC 2006). Approximately 3,350 British Columbians are co-infected with HIV and HCV, representing almost 30% of the total estimated number of HIV/HCV co-infected persons in Canada (Boulos PHAC 2005). HIV-HCV co-infection is high among IDUs, particularly among early initiates into injection drug use and drug-addicted youth (younger than 29 years) (Miller CL J Adolesc Health 2006; Can JID 2003).
**HIV-Hepatitis B Virus (HBV) co-infection**

HBV/HIV co-infection results in a faster progression to end-stage liver disease and is a leading cause of morbidity and mortality among HIV-positive patients. Overall, 10% of people with HIV worldwide have chronic hepatitis B, but this rate is significantly greater in highly endemic areas for HBV, including Eastern Asia and sub-Saharan Africa. In 2001, the incidence of HBV in Canada was approximately 4.2 cases for every 100,000 persons. However, there remain older, unvaccinated, high-risk individuals (eg. MSM, immigrants from HBV-endemic countries) who continue to be at heightened risk of HIV/HBV co-infection.

**HIV-Tuberculosis (TB) co-infection**

HIV-infected individuals have a 14% risk of developing TB over two years, compared to non-HIV-infected individuals, who have a 5-10% lifetime risk of developing TB (CDC 2006). In Canada, TB rates are particularly elevated among people from TB-endemic countries, Aboriginals and people from other vulnerable groups, including IDUs and street-involved populations (Health Canada 2000). Rates of TB in Vancouver’s DTES are one third of what they were four years ago (from a high of 85.5/100,000 in 2001, to 28.9/100,000 in 2005). This drop is attributed to the BC-CDC’s active TB prevention program (BCCDC 2005).

** Emerging Vulnerable Groups in BC**

**Migrant Workers**

International studies have found that migrant work is associated with increased vulnerability to HIV infection due to associated risk behaviors and lack of access to HIV prevention services (UNAIDS 1998). Research based in the United States has found that long-haul truckers often engage in unprotected sexual intercourse with multiple sex partners (Stratford D, Social Sc & Med 2000). Among those who inject drugs, access to health care is limited, including HIV testing (Moyer LB, Drug Alcohol Rev 2008). The recent phenomenon of guest workers (2 years residency in Canada permitted) raises new issues for prevention of transmission.

**University/college students**

Youth, in general, are vulnerable to HIV infection as a result of many factors, including risky sexual behavior, substance use, and perceptions that HIV is not a threat to them (CDC 2006). In a cross-sectional review of attitudes towards HIV testing among first-year university students in the US, one fifth had ever had an HIV test, and 75% felt they were not at risk of HIV (Peltzer K, Indian J Med Sci 2004). A CDC study of sero-prevalence on 17 university campuses across the US found that older male students are at greatest risk of HIV infection. HIV prevalence and risk factors among university and college students in Canada remains unknown (Gayle H, Int Conf AIDS 1989).