#ADHERENCE2016

Ending AIDS as a Public Health Threat: The Power of Change

MAY 9–11, 2016 • FORT LAUDERDALE

Jointly sponsored by

IAFAC
INTERNATIONAL ASSOCIATION OF PROVIDERS OF AIDS CARE

PIM
Postgraduate Institute for Medicine
The Devil’s in the Details: What Do We Mean by Ending AIDS as a Public Health Threat?

Julio Montaner, OC, OBC, MD
Conflict of Interest Disclosure
Julio Montaner, OC, OBC, MD

- **Income**: UBC, and St Paul’s Hospital/Providence Health Care.
- **Royalties**: N/A.
- **Receipt of Intellectual Property Rights/Patent Holder**: N/A
- **Consulting Fees**: Gilead Sciences, Teva and InnaVirVax (paid to institution).
- **Fees for Non-CME Services Received Directly from a Commercial Interest or their Agents**: N/A.
- **Ownership Interest (stocks, stock options or other ownership interest excluding diversified mutual funds)**: N/A.
- **Other**: N/A.
Learning Objectives
Julio Montaner, OC, OBC, MD

• To review the concept of HIV Treatment as Prevention

• To review the UN 90-90-90 Target

• To review the feasibility of the UN 90-90-90 Target in resource rich and limited settings

• To evaluate the impact of the UN 90-90-90 Target as it relates to “Ending AIDS as a Public Health Threat”
New HIV and Syphilis Cases
BC 1991-2004

Rate per 100,000 population

HIV
Syphilis
The case for expanding access to highly active antiretroviral therapy to curb the growth of the HIV epidemic

Julio Montaner, Robert Hogg, Evan Wood, Thomas Kerr et al

The Lancet; 2006, 368:531-536
HAART Coverage in BC

Pre-HAART | HAART | TasP

# of active participants on HAART in the HIV treatment programme 1994–2009

- Summer of 1996
- Summer of 2000
- January 2004

Montaner et al, PLOS One 2014
Deaths due to AIDS

Deaths not due to AIDS

% of deaths due to AIDS

Deaths

% due to AIDS

0

50

100

150

200

250

300

0%

20%

40%

60%

80%

100%


Year

HAART

TasP

Number of AIDS-Defining Illnesses

0

100

200

300

400

500

600

700

800


Pre-HAART

HAART

TasP

AIDS Incidence

Deaths due to AIDS

Mortality

HAART

TasP

V Lima, J Nakagawa, R Hoog, J Montaner et al, 2016
# Mortality & Life Expectancy in BC

<table>
<thead>
<tr>
<th>Mortality rate (95%CI) per 1000 person-years</th>
<th>Life expectancy at age 20 years (standard error)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003 - 2005 33.76 (29.41 – 38.57)</td>
<td>28.82 (1.82)</td>
</tr>
<tr>
<td>2009 - 2012 18.22 (14.57 – 22.50)</td>
<td>49.81 (1.69)</td>
</tr>
</tbody>
</table>

V Lima, J Nakagawa, R Hoog, J Montaner et al, 2016
New HIV Diagnoses and HAART Use

Modified from Montaner et al, PLOS One, Feb 12, 2014
The Cascade of Care over time in BC

Modified from Nosyk et al, Lancet ID, Jan 2014
Longitudinal adherence to HAART, by refill compliance, in BC

Modified from Montaner et al, PLOS One, Feb 12th 2014
ARV Drug Resistance in BC

Modified from Montaner et al, PLOS One, Feb 12th 2014
Near real-time monitoring of HIV transmission hotspots
Near real-time monitoring of HIV transmission hotspots from routine HIV genotyping: an implementation case study

Figure 4: Timeline of cluster 55 outbreak

www.thelancet.com/hiv  Published online April 7, 2016  http://dx.doi.org/10.1016/S2352-3018(16)00046-1
AMBITIOUS TREATMENT TARGET

THE FINAL CHAPTER OF THE AIDS EPIDEMIC
Ambitious Treatment Target by 2020

90% diagnosed
90% on treatment
90% virally suppressed

THE FINAL CHAPTER OF THE AIDS EPIDEMIC
Ending AIDS: Reducing new infections and AIDS-related deaths by 90% of 2010 levels

AIDS Deaths

New HIV Infections

Stover et al, GAP Report, UNAIDS, 2014
3.3: By 2030, end the epidemics of AIDS, tuberculosis, malaria & neglected tropical diseases. Combat hepatitis, water-borne diseases & other communicable diseases.
Progress toward the 90-90-90 Target in BC as % of Estimated HIV Prevalence

- 90% Diagnosed
- 90% On ART
- 90% Suppressed

Year


% of HIV Prevalence

0% 20% 40% 60% 80% 100%

Diagnosed
On ART
Suppressed

V Lima, J Nakagawa, R Hoog, J Montaner et al, 2016
Progress toward the 90-90-90 Target in BC as % of previous step

V Lima, J Nakagawa, R Hoog, J Montaner et al, 2016
San Francisco: New HIV Diagnosis, Living HIV cases and Deaths

- 15,979 living with HIV
- 302 new diagnosis
- 177 deaths

Estimated data (2006-2014) from the City of San Francisco Department of Public Health. © D Havlir
Testing the hypothesis that treatment can eliminate HIV: a nationwide, population-based study of the Danish HIV epidemic in men who have sex with men

Justin T Okano*, Danielle Robbins*, Laurence Palk, Jan Gerstoft, Niels Obel, Sally Blower

[Bar chart showing the number of MSM treated with complete viral suppression, incomplete viral suppression, diagnosed but not on treatment, and undiagnosed from 1996 to 2012.]

[Line graph showing estimates, median values, 95% Bayesian credible interval, and Danish HIV Cohort Study data for the number of new diagnoses in MSM (<200 cells per μL) from 1996 to 2013.]

www.thelancet.com/infection  Published online May 9, 2016  http://dx.doi.org/10.1016/S1473-3099(16)30022-6
High Coverage of ART Associated with Decline in Risk of HIV Acquisition

Holding other key HIV risk factors constant, individual HIV acquisition risk declined significantly with increasing ART coverage in the surrounding local community. For example, an HIV-uninfected individual living in a community with high ART coverage (30 to 40% of all HIV-infected individuals on ART) was 38% less likely to acquire HIV than someone living in a community where ART coverage was low (<10% of all HIV-infected individuals on ART).
Botswana’s progress toward achieving the 2020 UNAIDS 90-90-90 antiretroviral therapy and virological suppression goals: a population-based survey

Figure 3: Proportions of HIV-Infected Individuals enrolled in the Botswana Combination Prevention Project meeting the UNAIDS 90-90-90 targets at baseline
Expanding ART Saves Lives and Money
(e.g.: South Africa)

Cost-Effectiveness of HIV Treatment as Prevention in Serodiscordant Couples


CONCLUSIONS

In South Africa, early ART was cost-saving over a 5-year period. In both South Africa and India, early ART was projected to be very cost-effective over a lifetime.
Cost-Effectiveness of HAART Expansion in BC
Nosyk et al, Lancet HIV 2015
No. 64.781

From the Vatican, 5 June 2015

Dear Dr Montaner,

His Holiness Pope Francis thanks you for informing him of the forthcoming International Conference on HIV/AIDS in Vancouver. He sends prayerful greetings to all taking part, and expresses his esteem for their work and the dedication it requires.

His Holiness is grateful for the many advances made in the prevention and treatment of HIV/AIDS, particularly through Highly Active Antiretroviral Therapy, and the promotion of “Treatment through Prevention”. The lives that have been saved, both through the reduction in the number of new infections and the better health and longer lifespan of those already diagnosed, gives witness to the possibilities for beneficial outcomes when all sectors of society unite in common purpose. He hopes that further efforts may be made to make the fruits of research and medicine available to the world’s poorest people, especially orphaned children, upon whom this scourge often places the heaviest burden. He likewise prays that all advances in pharmacology, treatment and research will be matched by a firm commitment to promote the integral development of each person as a beloved child of God. Upon all of you, the Holy Father invokes abundant divine blessings of wisdom and peace.

With every good wish, I am

Yours sincerely,

[Signature]

Secretary of State
October 8, 2015

Dr. Julio S. G. Montaner
Professor and Head, UBC Division of AIDS
UBC and St. Paul’s Hospital Foundation Chair in AIDS Research
Faculty of Medicine, University of British Columbia;
Director, BC Centre for Excellence in HIV/AIDS, St. Paul’s Hospital, Providence Healthcare;
UNAIDS Special Advisor on HIV Therapeutics;
Past-President, International AIDS Society.

Dear Dr. Montaner,

Thank you for taking the time to send me a copy of your letter to the Prime Minister regarding the British Columbia Centre for Excellence in HIV/AIDS’ 90-90-90 Target to end AIDS by 2030. It was an absolute pleasure to sit down with you earlier this year to discuss how to combat this disease, and I sincerely appreciate your following up with me.

I, and the Liberal Party of Canada, are committed to achieving a future that is free of HIV and AIDS, and thank all the doctors and researchers who are taking the lead in the effort to find a cure against this deadly pandemic. Unfortunately, since taking office in 2006, the Harper Conservatives have been slow to either embrace or accept any scientific innovation, and have failed to consult with leading experts, such as yourself. Their actions have deprived many Canadians of universal access to proper treatment, as well as the cure and support they need.

Should the Liberal Party of Canada form the next government, we are dedicated to taking aggressive action to combat both the disease, as well as the unfortunate stigma that continues to surround it. Our party supports the adoption of the 90-90-90 target, as embraced by both the United Nations and Ban Ki Moon. Canada must do more in the global fight against HIV/AIDS, and work to alleviate the burden of the disease on people around the world.

Dr. Montaner, thank you once again for taking the time to write to me and following up on this important issue. I wish you all the best in your continued efforts to bring about much-needed positive change and awareness for people living with HIV/AIDS.

Sincerely,

Justin F. Trudeau
Leader of the Liberal Party of Canada
Statement

World AIDS Day - December 1, 2015

December 1st is World AIDS Day - an opportunity for individuals, communities and governments to reflect on the work that we have accomplished together, and that remains to be done in our response to the HIV/AIDS epidemic in Canada and around the world. It is an opportunity for us to harness the power of social change to prevent new infections and to improve the quality of life of those living with HIV or AIDS worldwide.

The first week of December also marks Aboriginal AIDS Awareness Week. This Week aims to increase awareness of HIV/AIDS among Indigenous people and First Nations, Inuit and Métis leadership in order to create more supportive environments for Indigenous people living with HIV/AIDS.

For the past 30 years, I have been a family doctor both here in Canada and in West Africa. In my practice in Markham, Ontario, I have treated patients with HIV/AIDS and I have been grateful for the resources that are available. My experiences overseas in Africa, on the other hand, tell a very different story. There, I saw first-hand not only the devastating impact of HIV/AIDS, but also the difference that can be made by working together with affected communities. In 2004 I founded “Give a Day to World AIDS” to engage Canadians in responding to HIV.

Now, as Minister of Health, I am pleased and proud to be in a position where I can do even more. Canada has provided global leadership in the fight against HIV/AIDS, including the ground-breaking work of Dr. Julio Montaner and the British Columbia Centre for Excellence in HIV/AIDS, and countless others. We are making many significant contributions in research, public health, treatment and prevention.

It is amazing to see how far we have come. Now, the innovative treatments and advances in prevention have allowed us to reach a point where we are talking about people “living with HIV” as a chronic condition, extending their lifetime.

Canada endorses the United Nations Joint Programme on HIV and AIDS (UNAIDS) global HIV treatment targets - known as the 90-90-90 targets. These global targets call for 90% of people living with HIV to know their status, 90% of those diagnosed with HIV to be on treatment, and 90% of people on treatment to successfully manage their infection by 2020. Achieving these goals will help get the world on track to end the AIDS epidemic by 2030.

After decades of tireless effort, we can finally say that the tide is turning and the AIDS epidemic is on the decline. Much work still needs to be done. Now is the time to strengthen our resolve to “Get to Zero.”

In Canada, 1 in 5 live with HIV without knowing it. Stigma is a barrier that inhibits people from seeking testing and treatment. We need to work collectively so all those living with HIV in Canada are aware of their status, comfortable accessing available treatment, and can take steps to prevent the spread of infection.

This truly is an issue close to my heart. This World AIDS Day, let us celebrate what Canada has accomplished. I invite all Canadians to join me in wearing the signature red ribbon and to show our support for the men, women and children living with or affected by this condition.

The Honourable Dr. Jane Philpott
Minister of Health
Canada pledges $785-million to fight AIDS, tuberculosis and malaria

Globe & Mail, May 9th, 2016
Treatment as Prevention

Targeted Disease Elimination

Health Care Sustainability
The end of AIDS?
How 5 million lives have been saved, and a plague could now be defeated
Thank You