TasP: Lessons Learned
Moving from HIV to HCV

Julio Montaner, MD
Professor of Medicine, and Head, Div. of AIDS, University of British Columbia
Director, BC-Centre for Excellence in HIV/AIDS at Providence Health Care

Split, Croatia, November 15th 2013
Vancouver 1996

“One World One Hope”
Impact of HAART in BC-CfE

Death Rate per 1000

Life Expectancy at age 20

Modified from Hogg et al, Lancet. 2009
HAART stops HIV replication
↓
HIV load falls to undetectable levels in plasma as well as in sexual fluids
↓
Sharp reduction in HIV transmission
Increasing HAART Coverage within Evolving Guidelines in BC

N = 7492 by the end of 2011

Phase I  Phase II  Phase III

Summer of 1996  Summer of 2000  January 2004

Montaner et al, Lancet, 2010
BC: All Cause Mortality (#)

> 90% Decrease in All Cause Mortality among HIV Infected Individuals in BC since 1996

Montaner et al, TasP Workshop, April 2012
AIDS New Cases for BC by year, 1996-2011

<table>
<thead>
<tr>
<th>Year</th>
<th>AIDS Rate per 100,000 population</th>
<th>CD4 Rate per 100,000 population</th>
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</thead>
<tbody>
<tr>
<td>1996</td>
<td>15.6</td>
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<td>2011</td>
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HIV positive
Maternal infant pairs in BC

Courtesy, Dr D Money
HAART use and HIV new Diagnoses
British Columbia, 1996 - 2012

Number of new cases and new diagnoses

<table>
<thead>
<tr>
<th>Year</th>
<th>New HIV Diagnoses (All)</th>
<th>New HIV Diagnoses (Ever IDU)</th>
<th>Active on HAART</th>
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Updated from Montaner et al, Lancet, 2010
Expanding ART for Treatment and Prevention of HIV in South Africa: Estimated Cost and Cost-Effectiveness 2011-2050

Lives Saved (x 1,000)

- 5.5 million lives
- 3.9 million lives
- 2.0 million lives

USA Billions

- US$7.2 billion
- US$17.3 billion
- US$28.7 billion

Granich et al 2012 | Volume 7 | Issue 2 | e30216
HPTN 052: Immediate vs Delayed ART in Sero-discordant Couples

HR = 96.3% reduction in transmission
No difference whether index pt was M or F

Deferred

Immediate

When to start: Potential scenarios

Estimated millions of people eligible for ART in lower & middle-income countries in 2011

11
15
23
>25
32

1. CD4 ≤ 200
Recommended Since 2002

2. CD4 ≤ 350

3. CD4 ≤ 350 +
Expanded CD4 independent conditions

4. CD4 ≤ 500
ART regardless of CD4 count for:
- HIV-SD couples
- TB/HIV
- HBV/HIV
- Pregnant women
- Children ≤ 5yo

5. “Test and treat”
All HIV+

Modified from Meg Doherty, et al. 3rd International TasP Workshop, Vancouver 2013
Until there is a vaccine, Mr. Clinton said, studies show that suppressing blood levels of HIV with potent antivirals can help block the disease's transmission. The Chair of AIDS Research at the University of British Columbia, Julio Montaner, who is the incoming president of the International AIDS Society that sponsors this conference, is a leading champion of using drugs as preventatives.
antiretroviral treatment in stopping new infections and how it can be effectively used as part of combination HIV prevention approaches must be further explored, as shown by Dr Julio Montaner, President of the International AIDS Society.
Few could have imagined that we’d be talking about the real possibility of an AIDS-free generation. But that’s what we’re talking about…make no mistake, we are going to win this fight.

President Obama, December 1, 2011

PS: By the end of 2013, PEPFAR will directly support more than 6 M people on HAART—2M more than previously targeted.
France Adopts TasP

Oct 3rd 2013: France Adopts TasP

Country implements combined prevention and the use of drugs as prevention

France adopts new national policy to test and treat HIV

The French Ministry of Health recently announced its new recommendations for the treatment of people living with HIV (PLHIV). The main novelties are the adoption of antiretroviral therapy in all PLHIV and the promotion of a “combined prevention” which associates behavioral measures, testing strategies and antiretroviral therapy. The announcement was made after broad discussion with key actors of HIV care, prevention and research in the country.

According to Fábio Mesquita, director of the Brazilian Ministry of Health’s Department of STDs, AIDS and Viral Hepatitis, the recommendations approved in France make that country the second in the world after the U.S. to adopt the form of treatment as prevention (Test and Treat - TasP). “It is very positive that France, one of the most developed countries in the area of HIV, has adopted these measures, nowadays backed by abundant scientific evidence”, he stated.

The new guidelines for treatment are already being considered as a reference by the professionals in HIV Infection. The report of the measures will be made available online in October on the French Ministry of Health website (www.sante.gouv.fr).

For the first time, the responsibility for the 2013 report was entrusted to CNS (National AIDS Council) and to ANRS (National Agency for Research on AIDS and Viral Hepatitis). Professor Philippe Morlat (Hospital and University of Bordeaux), was in charge of coordinating the report.

The 2013 expert group is comprised of 21 clinicians, biologists and scientists, and two representatives of civil society organizations. The group also counted on the expertise of 16 thematic commissions and the contributions of other qualified professionals. In total, more than 240 collaborators, from varied horizons, participated in this new report. Half of the experts of the 2013 group were renewed compared with the preceding group. Public declarations of interest from the members of the group are available on the CNS website (http://www.cns.sante.fr/spip.php/article480).

The recommendations take into account the analysis of the data available in the areas of epidemiology, prevention and testing, antiretroviral therapy for adults and children and their clinical and virological surveillance. Clinical, biological and therapeutic management of co-infections, the desire to have children and pregnancy, blood and sexual exposure accidents were also considered. Knowledge of the organization of care, living conditions of people living with HIV / AIDS, socioeconomic data and ethical considerations were also taken into account in decision making.
Brazil adopt B.C.’s Treatment as Prevention strategy as national HIV/AIDS policy

17 October, 2013
TasP in BC

Exporting TasP to HCV
HCV Burden in BC, Canada
Schematic Representation

PREVALENCE

Baby Boomers | IDUs

Lima et al, CROI - 2013
HCV Burden in BC, Canada
Schematic Representation

Lima et al, CROI - 2013
Modeling different TasP strategies to reduce the public health impact of the HCV epidemic

Interventions
- Increase testing from the current 5% to 40% per year;
- Increase treatment uptake from the current 3% to 50% per year;
- Shorter and more effective treatment for Genotype 1;
- Increase the proportion of individuals who will remain in the Recovered and Engaged into Care Compartment from 0% to 100%.

$K_t$ (Kappa): Proportion of people moving from achieving SVR within the “On Treatment” compartment to the “Recovered and Engaged into Care” compartment

Lima et al, CROI - 2013
HCV TasP - effects of future therapy

Projected model results using as main parameters: $\tau = 5\%$ to $50\%$ for testing coverage (increased using an exponential growth), $\sigma = 3\%$ to $40\%$ for treatment coverage (increased using an exponential growth), $\rho = 70\%$ for the proportion achieving SVR for genotype 1 (using a duration of treatment of 24 weeks), $\kappa = 0\%$ (Status Quo) to $100\%$ for the proportion of individuals moving and staying into the recovered and engaged into care compartment after achieving SVR, $\gamma = 10\%$ for the loss of individuals from the recovered and engaged into care compartment at a rate of 10 per 100 population per year; $\varkappa = 0$ per 100 population for the rate per year of individuals who will move from the on treatment compartment to the chronic aware not eligible for treatment compartment; and $\varepsilon = 50\%$ for the reduction in the probability of being re-infected.
Supported by the MoH, Gov of British Columbia, plus research grants, including $5M 10 year Award from the National Institute for Drug Abuse (NIDA) at the NIH, $5M from Genome Canada/BC and from Pharmaceutical Industry, including Merck, Gilead, ViiV and BMS