The importance of HIV diagnosis in achieving universal access to prevention, care and treatment

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Presentation plan

1 – HIV/AIDS: *The epidemic is evolving*
2 – HIV tests – HIV screening
3 – Screening and Access to Care: a compulsory continuum
4 – Antiretroviral therapy: tips and traps?
5 – Have we changed our view on prevention recently?
6 – Concluding remarks
1. HIV/AIDS: a stabilized epidemic (1)

Global estimates 1990–2008

2008: 30% less new infections as compared to 1996. Spread of HIV has peaked in 1996 [3.5 new infections].
2008: 5 countries have less new infections – for three of them (Zambia, Dominican Republic and Tanzania)*, the decline is significant: a success of prevention?

Number of patients newly infected with HIV

Number of adult and child deaths due to AIDS
1. HIV/AIDS: a stabilized epidemic (2)

2008: stabilized prevalence – resulting from newly infected persons and the effect of antiretroviral therapy – large geographical variation: prevalence still increasing in Eastern Europe and in Asia
Effect of ARVs to combat Mother to Child transmission

Estimated number of new child infections at current levels of antiretroviral prophylaxis and without antiretroviral prophylaxis, globally, 1996–2008

![Graph showing estimated number of new child infections](image)
Globally, coverage for services to prevent mother-to-child HIV transmission rose from 10% in 2004 to 45% in 2008.
Presentation plan

1 – HIV/AIDS: The epidemic is evolving

2 – HIV screening
   « Information on the proportion of people living with HIV who know their HIV status is critical to achieving universal access Targets »

3 – Screening and Access to Care: a compulsory continuum

4 – Antiretroviral therapy: tips and traps?

5 – Have we changed our view on prevention recently?

6 – Concluding remarks
Percentage of pregnant women in low- and middle-income countries receiving an HIV test, 2004-2007

No data are available for the Middle East and North Africa.
Who should be offered VCT?

- «testing and counselling should be recommended to all people seen in all health facilities in generalized epidemics and in selected health facilities in low-level and concentrated epidemics»
  - Data on the availability of HIV testing (number of facilities providing HIV testing and counselling)
  - Uptake of HIV testing and counselling (number tested the last 12 months)
  - Proportion of patient living with HIV knowing their status
### How to test? Laboratory capabilities in RLS (WHO)

<table>
<thead>
<tr>
<th>Diagnosis and monitoring laboratory tests</th>
<th>Primary care level</th>
<th>District level</th>
<th>Regional/referral level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HIV antibody testing</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>HIV virological diagnostic testing</strong></td>
<td>-</td>
<td>+</td>
<td>✓</td>
</tr>
<tr>
<td>CD4 (absolute count and %)</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Diagnostic tests for treatable coinfections and major HIV-related opportunistic diseases</td>
<td>Basic microscopy for TB and malaria (sputum smear for TB and blood film for malaria diagnosis)</td>
<td>+</td>
<td>✓</td>
</tr>
<tr>
<td>Full cerebrospinal fluid (CSF) aspirate examination (microscopy, India ink, Gram stain, Ziehl-Neelsen); syphilis and other STI diagnostic tests</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Diagnostic tests for hepatitis B, hepatitis C serology, bacterial microbiology and cultures and diagnostic tests and procedures for PCP, <em>Cryptococcus</em>, toxoplasmosis and other major OIs</td>
<td>-</td>
<td>+</td>
<td>✓</td>
</tr>
<tr>
<td><strong>HIV viral load measurement</strong></td>
<td>-</td>
<td>-</td>
<td>+</td>
</tr>
</tbody>
</table>

*With the courtesy of Prof Delaporte*
Percent HIV-infected adults who were tested and received result

<table>
<thead>
<tr>
<th>Country</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dominican Republic</td>
<td>60.7</td>
</tr>
<tr>
<td>Swaziland</td>
<td>38.7</td>
</tr>
<tr>
<td>Rwanda</td>
<td>31.4</td>
</tr>
<tr>
<td>Haiti</td>
<td>24.5</td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>23.7</td>
</tr>
<tr>
<td>Côte d’Ivoire</td>
<td>16.5</td>
</tr>
<tr>
<td>Democratic Republic of Congo</td>
<td>10.5</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>7.6</td>
</tr>
</tbody>
</table>

A large proportion of people with HIV thus remain to be diagnosed

Presentation plan

1 – HIV/AIDS: *The epidemic is evolving*
2 – HIV tests – HIV screening

**3 – Linking HIV tests, HIV diagnosis and Access to Care**
4 – Antiretroviral therapy: tips and traps?
5 – Have we changed our view on prevention recently?
6 – Concluding remarks
Effect on mortality of access to HIV screening and care

Nombre d’événements cliniques sévère et de décès dans les 5 ans en Afrique du Sud selon le seuil de début des ARV (sur une population estimée de 4,7 millions de personnes ayant plus de 350 CD4/mm3)

Walensky, Ann Intern Med 2009 – with the courtesy of Xavier Anglaret
Access to Diagnostic and Access to care: impact on transmission

Nombre d’événements cliniques sévère et de décès dans les 5 ans en Afrique du Sud selon le seuil de début des ARV (sur une population estimée de 4,7 millions de personnes ayant plus de 350 CD4/mm3)

Pourcentage de réduction de l’incidence du VIH

Intervalle (en années) entre chaque test

Dodd, AIDS 2010 – with the courtesy of Xavier Anglaret
Diagnosing and treating HIV: confronting reality

Bassett et al, AIDS 2010
Time to start HAART in Durban, SA

Bassett et al, AIDS 2010
How many start ART?

- HIV Tested: 2,775
- HIV-infected: 1,467
- CD4/results: 605
- Eligible for ART: 368
- Start ART: 154 (42%)

Failure to obtain CD4
Failure to start ART when eligible

Median time to ART initiation: 100 days

Bassett et al. AIDS 2010 – slide from Walenski R
Does this graph remind you something?
Attrition: Example from MTCT

Stringer EM et al. AIDS 2003; 17:3077 (Lusaka, Zambia)
Comparative effectiveness of HIV testing and treatment in highly endemic region

Increasing linkage to care and preventing LTFU provides nearly twice the benefit of universal test and treat alone.

Figure 1.
Estimated deaths from HIV over 10 years in South Africa for different HIV testing and treatment strategies. A comparison of the total number of HIV-related deaths over 10 years, by strategy, scaled to South Africa. The error bars represent the 95% confidence bounds from the probabilistic sensitivity analysis.

Bendavid Eran et al, Arch Intern Med 2010
• Reinforcement of access to tests, access to care, and its link will decrease both mortality AND transmission

• Tout renforcement de l’accès au dépistage et au lien diagnostic-traitement diminue la mortalité ET la transmission
Presentation plan

4 – Antiretroviral therapy
## IAS-USA Guidelines 2010: When to Start

<table>
<thead>
<tr>
<th>Asymptomatic Infection</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ CD4+ cell count &lt; 500 cells/mm³</td>
<td>▪ Start HAART</td>
</tr>
<tr>
<td>▪ CD4+ cell count &gt; 500 cells/mm³</td>
<td>▪ Should be considered*</td>
</tr>
</tbody>
</table>

### Clinical Conditions Favoring Initiation of Therapy Regardless of CD4+ Cell Count

- Symptomatic HIV disease
- Acute opportunistic infection
- Pregnant women
- Older than 60 yrs of age
- HIV-1 RNA > 100,000 copies/mL
- Rapid decline in CD4+ cell count (> 100 cells/mm³/yr)
- Active HBV or HCV infection
- Active or high risk for CV disease
- Symptomatic primary HIV infection
- HIVAN
- Serodiscordant couples

Confronting reality

- Review of data from 2003-2005 from 42 countries, 176 sites, n=33,008
- Since 2000, CD4 at initiation in developed countries stable at about 175 cells/µl, increasing in Sub-Saharan Africa from 50 → 100 cells/µl.

Egger M, 14th CROI, Los Angeles 2007, #62.
Proportion of patients with late HIV diagnosis in Switzerland?

1. 5 %
2. 10 %
3. 20 %
4. 30 %

USA: Between 1997 and 2007, the **median** CD4 count at first presentation increased from 256 to 317 cell/mm³, at an annual rate of about 6 cells/mm³ in the US.
CDC initiative to help make HIV testing part of routine medical care

- 50% of US citizens have never been tested for HIV
- 72% of US citizens had a medical « check up » in the preceding year
- 1 in 5 Americans infected with HIV (200’000 individuals) are unaware of their status and are responsible for more than 50% of new infections
Barriers to increase testing in wealthy countries

- Impact of health service charges
- Substance abuse
- Mental illnesses
- Denial
- Stigma?
- Granich model: 10% (?) of transmission occur during acute infection: annual testing may missed such high transmitters
And thus – the promise of eradication?
Les personnes séropositives ne souffrant d’aucune autre MST et suivant un traitement antirétroviral efficace ne transmettent pas le VIH par voie sexuelle

Pietro Vernazza, Bernard Hirschel, Enos Bernasconi, Markus Flepp

Après avoir pris connaissance des faits scientifiques, à la demande de la Commission d’experts clinique et thérapie VIH et sida (CCT) de l’Office fédéral de la santé publique (OFSP) et après avoir longuement délibéré, la Commission fédérale pour les problèmes liés au sida (CFS) arrive à la conclusion suivante:

Une personne séropositive ne souffrant d’aucune autre MST et suivant un traitement efficace n’empêche pas qu’un TAR efficace empêche toute infection au VIH (en effet, il n’est pas possible de prouver la non-survenance d’un événement certes improbable, mais théoriquement envisageable). Reste que du point de vue de la CFS et des organisations concernées, les informations disponibles à ce jour sont suffisantes pour justifier ce message. La situation est comparable à celle de 1986, lorsqu’il a été communiqué publiquement...
Une trithérapie efficace empêche la transmission du virus du sida

ÉPIDÉMIE

La Commission fédérale du sida estime qu’un traitement approprié peut remplacer le préservatif. Pas pour tout le monde, prévient la Fédération suisse des médecins.

La décision était attendue, elle est tombée hier. La Commission fédérale du sida (CFS), à Berne, a conclu qu’une personne séropositive sous trithérapie efficace ne transmet pas le virus du sida lors de rapports sexuels. Le professeur genevois Bernard Hirschel, spécialiste du sida aux HUG, l’avait déjà avancé début décembre 2007 (voir nos éditions du 1er décembre 2007 et du 26 janvier 2008). Aujourd’hui, cette prise de position officielle inquiète les milieux de la prévention. Mais elle pourrait faire évoluer la justice, qui peut pour non transmissible. Cependant, la CFS énonce trois conditions pour la non-transmission: une virémie indétectable depuis plus bien, sans compter le nombre de malades qui s’ignorent.

«Cette information n’a pas de
If Lima and Montaner are right, it is enough to treat > 75% of those with CD4 counts < 350, and after a while, there will be close to zero new infections: HIV will disappear.

Lima et al. JID, 2008
Swiss HIV Cohort: More patients with stably suppressed viral load

Adapted from Ledergerber et al. CROI 2010
Switzerland: Newly Diagnosed HIV Infections, and N of pts with viremia > 500 in the SHCS*
How can we go further?
The Africa Center for Health and Population Studies

Location of Hlabisa within South Africa

Marie-Louise Newell
Basic Plan of TasP trial

• Screen « everybody »

• 2 arms:
  – Intervention Clusters: Treat all who screen HIV+
  – Control clusters: HIV+ with treatment indications according to local guidelines, but using the type of HAART prescribed in the Intervention Clusters.
Access to treatment: different times, different meanings!


Vancouver Constat
FSTI
Pilot programs Ex: Sénégal
Generic drugs
GFTAM
UNAIDS Drug Initiative Bithérapie
MSF
WHO “3 X 5”
PEPFAR other agencies
“Accès universel”

Esther

Access to treatment:
different times, different meanings!

Treatment and Prevention

Prevention  Treatment

With the courtesy of Eric Delaporte
Key Messages

- Epidemic is stabilizing – but large geographical variations persist
- Universal Access can only happen if HIV is diagnosed – increasing the link between diagnosis and care is a necessity
- Start ART earlier – ART as prevention
  - Certain: CD4 less than 350, TB, infants/children
  - Less certain: CD4 less than 500 but >350