HIV Prevention in Latin America—setting the stage

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The HIV Pandemic
New infections in adults 2005- 2015

In 2015, 37 mi people living with HIV.
1.9 mi new infections per year.

Trends in new HIV infections for top 10 countries in sub-Saharan Africa, 2005 and 2013

Trends in new HIV infections in Latin America, 2005 and 2013

Global HIV Epidemics Among MSM

Pooled HIV prevalence among MSM, and among all men of reproductive age by region, updated 2013


* UNAIDS World report 2012 (data 2011)
<table>
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<th>CHARACTERISTIC</th>
<th>CRUDE (N= 345), NO. (%)</th>
<th>WEIGHTED, % (95% CI)</th>
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<td>Active STD</td>
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<td>Syphilis</td>
<td>112 (32.7)</td>
<td>28.9 (18.0-39.8)</td>
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<td>Chlamydia</td>
<td>46 (14.1)</td>
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<td>25 (7.6)</td>
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<td>Hepatitis B</td>
<td>10 (2.9)</td>
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<tr>
<td>Hepatitis C</td>
<td>6 (1.7)</td>
<td>0.8 (0-1.8)</td>
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<td>HIV-positive self-reported status</td>
<td>95 (27.5)</td>
<td>23.2 (11.1-35.3)</td>
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<tr>
<td>HIV-positive status via testing</td>
<td>141 (41.2)</td>
<td>31.2 (18.8-43.6)</td>
</tr>
</tbody>
</table>
AIDS cases among young men in Brazil

MS/SVS/Departamento de DST, Aids e Hepatites Virais. Note: AIDS cases until 30/06/2013
Modified Ecological Model for HIV Risk in MSM
Structural Risks
Homophobia

Opinion Survey by the Pew Research Center
– 39 countries
– 37,653 respondents
– March-May, 2013

- Acceptance of homosexuality is widespread in countries where:
  • religion is less central
  • richest countries in the world

- Younger respondents and women are more tolerant

Available at: http://www.pewglobal.org/2013/06/04/global-acceptance-of-homosexuality/
Structural Stigma and all-cause Mortality

Fig. 2. Survival time by type of residential area, General Social Survey/National Death Index, 1988 - 2002

Hatzenbuehler et al. Social Science & Medicine . 2014
Heighened epidemic in men who have sex with men in Brazil

"They always up time changes things, but you actually have to change them yourself."

As noted in the UNAIDS Gap report, Brazil has the largest number of people living with HIV in Latin America and is one of 15 countries (mostly middle-income countries) that account for three-quarters of the global HIV epidemic. The epidemic in Brazil remains predominantly concentrated in key populations, such as injection drug users, sex workers, and gay, bisexual, and other men who have sex with men (MSM). However, in the past 10 years, the number of new HIV infections has been increasing in younger people (<25 years) and MSM.

As has been reported in other countries, the AIDS epidemic in Brazil is disproportionately concentrated in MSM. Results from a national study in 2017 showed that HIV prevalence among MSM ranged from 5.7% to 2.7% in ten large metropolitan areas throughout Brazil. The overall HIV prevalence in MSM was two times higher than that estimated for female sex workers and three times higher than that for injection drug users. Additionally, half of MSM in this study who tested HIV positive were not aware of their infection.1

In The Lancet HIV, Lara Coelho and colleagues2 reported findings from their observational cohort study of 2224 HIV-infected individuals from the Instituto Nacional de Infectologia Evandro Chagas database. After excluding individuals who reported injection drug use or heavy cigarette use, MSM were 2.74 (95% CI 1.63-4.13) times more likely to die from AIDS-related causes than were women in the adjusted model, although this figure is not significant (p<0.116). It indicates that differences in AIDS-related rates of death between this select group of MSM and heterosexual men and women needs further investigation. Compared with women, MSM were younger, more likely to be white, and had more years of education at enrollment, and they had slightly more compromised immune status in the follow-up period. MSM were also more likely to initiate ART than were women; however, among those who did start ART, their adherence, as suggested by their viral load, was higher than that in women. The lack of use of and retention on ART was further supported by the finding that the frequency of ART-defining malignant disease, specifically Kaposi’s sarcoma, was more than three times higher in MSM than in women. However, even after controlling for these factors in an adjusted model, the disparity in the hazard of AIDS-related death for MSM compared with women remained unchanged.

Furthermore, the increased hepatitis B virus infection among MSM in this study3 suggests the need for a comprehensive sexual health programme that includes vaccination for known sexually transmitted infections, including hepatitis B virus and human papillomavirus. Other sexually transmitted infections were not explored in this analysis but might indicate risks for HIV viraemia and poor health outcomes. Stigma and discrimination are highlighted by Coelho and colleagues4 as key environmental factors that might account for differential health outcomes among MSM, and this issue requires further research. Findings from systemic studies5–8 indicate the importance of addressing structural stigma (both sexuality and stigma related to disease or HIV status) to improve health outcomes.

Of note, some limitations are apparent in Coelho and colleagues5 study. First, 24 transgender women were included in the MSM category. In view of the large disparities previously reported between MSM and transgender women6 further effort will be needed to establish the differences in mortality between these groups in the study setting. Second, the results might have been affected by the substantial rate of loss to follow up (194 [9.5% CI 2.8%-30] per 1000 person-years). Finally, the extent to which the results of the study can be generalised to the rest of Brazil or to Latin America is unclear.

Overall, Coelho and colleagues5 findings suggest that further attention is urgently needed to optimise outcomes among MSM in Latin America, through facilitation of access and linkage to care and further promotion of sustained engagement on HIV treatment and care. Furthermore, Kent and colleagues6 support the need for the UNAIDS Fast-track approach to reduce new infections and AIDS-related deaths by 50% from 2010 to 2030 in other regions of Brazil, especially by expanding access to HIV testing. Known as the UN 90-90-90 Target, this approach proposes that, by 2020, at least 90% of HIV-infected people be diagnosed, at least 90% of them access ART, and at least
Mortality in HIV-infected women, heterosexual men, and men who have sex with men in Rio de Janeiro, Brazil: an observational cohort study

Lara Costa, Lilian Orenschi, Jessica Cordi, Raphael Feitelson, Marcela S. Eubelias, Diego P. Campos, Tatiana F. Ribeiro, Antonio C. Facheta, Valdeir G. Vicente, Paula M. Lur

Summary
Background: Mortality in HIV-infected individuals might differ by sex and mode of HIV acquisition. We aimed to study mortality in HIV-infected women, heterosexual men, and MSM in a cohort from Rio de Janeiro, Brazil.

Methods: In this observational cohort study, we included HIV-infected women, heterosexual men, and MSM (aged ≥18 years) from the Instituto Nacional de Infectologia, which was followed from January 1, 2006, to December 31, 2011, and who had at least 60 days of follow-up. Causes of death were determined by the CDS of the Coding of Death in HIV therapy, wherever documented. Cox proportional hazards models accounting for competing risks were used to explore risk factors for AIDS-related and non-AIDS-related deaths.

Findings: We had 10,142 person-years of follow-up from 2244 individuals: 875 (39.0%) women, 554 (25%) heterosexual men, and 335 (38%) MSM. Of 103 deaths occurred, 64 were AIDS-related, 31 were non-AIDS-related, and eight were of unknown cause. In unadjusted analyses, compared with women, the hazard of AIDS-related deaths was higher for heterosexual men (hazard rate [HR] 3.52, 95% CI 1.36–9.58; p = 0.009) and for MSM (2.36, 95% CI 0.85–9.54; p = 0.084). After adjusting for age, CD4 cell count, and HIV viral load, antiretroviral therapy use, and AIDS-defining infections, AIDS-defining malignancy disease, and hospital admission during follow-up, the access risk of AIDS-related death decreased for heterosexual men (adjusted HR 1.09, 95% CI 0.35–3.56; p = 0.82) but was unchanged for MSM (2.24, 95% CI 0.83–6.3; p = 0.14). Non-AIDS-related mortality did not differ by gender.

Interpretation: Compared with women, increased risk of AIDS-related death in heterosexual men was partly mitigated by risk factors for AIDS mortality, whereas the excess risk in MSM was unchanged. Further study of reasons for disparity in AIDS-related mortality by mode of transmission is needed.

Funding: US National Institutes of Health, Brazilian National Council of Technological and Scientific Development (CNPq), and Research Funding Agency of the State of Rio de Janeiro (FAPERJ).

Introduction
Access to combination antiretroviral therapy (ART) prevents HIV transmission and substantially reduces the progression of HIV-infected individuals by decreasing HIV viral load, increasing CD4 cell counts, delaying progression to AIDS, and reducing mortality. Nevertheless, inequalities in health outcomes among HIV-infected individuals exist. In particular, sex differences in mortality have been reported in several regions of the world. In a large study from the Anti-Retroviral Therapy Cohort Collaboration including more than 32,800 HIV-infected individuals from Europe and North America, HIV-infected women in Europe had lower mortality than men before and after ART initiation, whereas no sex differences in all-cause mortality were reported in Canada and the USA. In a large multicenter cohort study in South Africa (p = 0.01), the increased mortality risk in men after initiation of ART persisted after adjustments for sociodemographic and HIV-related clinical characteristics. A systematic review of 55 studies showed that women had improved survival (adjusted risk ratio of death 0.72; 95% CI 0.49–0.97) compared with men. The varying reports of sex disparities in mortality among HIV-infected populations might be explained by differences in the mode of HIV acquisition in men; in particular, in HIV-infected adults, injection drug use is associated with high mortality compared with other modes of transmission. By contrast, differences in mortality between heterosexual men and women who have sex with men (MSM) with HIV infection have not been well described. Findings from a study in Spain in 2014 showed that MSM with HIV infection have faster disease progression to AIDS but lower mortality than heterosexual individuals. A Danish study found no difference in mortality, in HIV-infected MSM, heterosexual men, and women. However, results from a US study in 2013 showed that in the general population, MSM social behavior was associated with an increased risk of death from HIV-related causes by more than three times. Whether sex mode of transmission contributes to, or modifies sex differences in mortality among HIV-infected men and women is unknown.
Prevenção Combinada

Slide courtesy of Dr. Fábio Mesquita
Estimated numbers of people receiving antiretroviral therapy globally and by WHO Region and percentage coverage globally 2000-2015

WHO: HIV/AIDS: Data and statistics: http://www.who.int/hiv/data/ART_2000_2015v2.png?ua=1, access date: 10Jan2017
## Progress Towards 90-90-90 Target

**Global, 2015**

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Value</th>
<th>Notes</th>
</tr>
</thead>
</table>
| Percentage of people living with HIV who know their HIV status\(^1\) | 60% (56–65%) | ![Green Bar](chart.png) *
| Percentage of people living with HIV who are on antiretroviral treatment | 46% (43–50%) | ![Teal Bar](chart.png) *
| Percentage of people living with HIV who are virally suppressed\(^2\) | 38% (35–41%) | ![Gold Bar](chart.png) *

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\(^1\) 2015 measure derived from data reported by 87 countries, which accounted for 79% of people living with HIV worldwide.

\(^2\) 2015 measure derived from data reported by 86 countries. Worldwide, 22% of all people on antiretroviral therapy were reported to have received a viral load test during the reporting period.

Source: UNAIDS special analysis, 2016; for more details, see annex on methods.
Progress toward the 90–90–90 target, by region, 2015

- Asia and the Pacific: 64%, 41%, 34%
- Eastern and Southern Africa: 62%, 54%, 45%
- Eastern Europe and Central Asia: 67%, 21%, 19%
- Latin America and the Caribbean: 75%, 55%, 41%
- Middle East and North Africa: 37%, 17%, 11%
- Western and Central Africa: 36%, 28%, 12%
- Western and Central Europe and North America: 86%, 59%, 47%
Antiretroviral therapy coverage among select key population groups and the general adult male and female population (aged 15 years and older), matched by survey year, 2013–2015

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Treatment cascade in key populations

**1. MSM in Russia**

![Graph showing treatment cascade in MSM in Russia](image1)

**2. MSM & PWID in India**

![Graph showing treatment cascade in MSM & PWID in India](image2)

**3. FSW in Zimbabwe**

![Graph showing treatment cascade in FSW in Zimbabwe](image3)

**4. TGW in Brazil**

![Graph showing treatment cascade in TGW in Brazil](image4)

3. Cowan et al. JAIDS. December 01, 2016. doi: 10.1097/QAI.0000000000001255
## CURRENT RECOMMENDATIONS FOR INITIATION OF ANTIRETROVIRAL THERAPY IN LATÍN AMERICAN GUIDELINES

<table>
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<tr>
<th>Guideline</th>
<th>AIDS or HIV-Related Symptoms</th>
<th>CD4+ Cell Count &lt; 200/mm³</th>
<th>CD4+ Cell Count 200-350/mm³</th>
<th>CD4+ Cell Count 350-500/mm³</th>
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Global analysis of delays from eligibility to ART initiation among adults (2004-2015)

Median CD4 count at enrollment

Median CD4 count at enrollment by region

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% missing enrollment CD4

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Expansão da Profilaxia Pós-Exposição (PEP)

Dispensações Mensais de PEP. Brasil, 2013 - 2016
“A hora é agora”- The Time is Now: HIVST to reach men who have sex with men in Brazil”
Overview

• 1 of 3 projects under the scope of the ‘A hora é agora” program designed to increase HIV testing among MSM

• Implemented in Curitiba, Brazil

• 1.75 million inhabitants
• HIV prevalence among MSM=6.9% (Kerr et al., 2013)
Aims

• To develop, implement and evaluate the feasibility of a Web-based intervention that

Promotes HIV prevention
Provides free anonymous HIVST
Promotes linkage to care

for MSM from Curitiba, ≥ 18 years and with HIV status unknown/negative
Website/app

Available at https://www.ahoraegora.org/ and IOS and Android

- 5 modules: General information, HIVST request, Delivery, Administration and Monitoring
- General information
  - HIV prevention
  - Self assessment of risk
    - Adapted from The HIV incidence Risk Index for MSM,
      - CDC guideline for PrEP
- HIV testing facilities

Calculadora de Risco

O risco de se infectar pelo HIV muda de acordo com as práticas sexualis. Se você está em dúvida sobre o seu risco no momento, preencha os seis campos e clique em “Calcular Risco”.

CALCULADORA DE RISCO

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<th>Questão</th>
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<td>Qual sua idade?</td>
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<td>Nos últimos 6 meses, com quantos homens você teve relações sexuais?</td>
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</tr>
<tr>
<td>Nos últimos 6 meses, quantas vezes você foi o parceiro passivo sem usar camisinha?</td>
<td></td>
</tr>
<tr>
<td>Nos últimos seis meses, com quantos homens sabidamente HIV-positivos você fez sexo?</td>
<td></td>
</tr>
<tr>
<td>Nos últimos 6 meses, quantas vezes você foi o parceiro ativo sem usar camisinha com um homem HIV positivo?</td>
<td></td>
</tr>
</tbody>
</table>
| Nos últimos 6 meses você usou drogas estimulantes (cocaína, poppers, crack, ecstasy)? | Não  

SCORE TOTAL: 0
HIVST

HIVST kits
• Oral fluid (OraQuick®)
• Two HIVST may be requested every 6 months
• Delivered by regular mail (identification needed) or retrieved in public pharmacy (anonymous)

Step-by-step video and written test instructions
• 24/7 hotline is available
# Feasibility

- From February 6, 2015 to January 31, 2016:

<table>
<thead>
<tr>
<th>Count</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>67,225</td>
<td>Hits in the website</td>
</tr>
<tr>
<td></td>
<td>- 17,786 unique visitors (Google Analytics)</td>
</tr>
<tr>
<td>7,341</td>
<td>Questionnaires were initiated</td>
</tr>
<tr>
<td>5,552</td>
<td>Fulfilled inclusion criteria</td>
</tr>
<tr>
<td>3,885</td>
<td>HIVST requests initiated</td>
</tr>
<tr>
<td>2,535</td>
<td>Valid requests</td>
</tr>
<tr>
<td>2,527</td>
<td>Requests delivered (4342 tests)</td>
</tr>
</tbody>
</table>
Conclusions & Lessons learned

• The e-testing strategy was feasible

• MSM were interested in HIVST

• Most tests were delivered by mail

• Results uploaded in the platform were lower than expected (20%)
  • no incentives are allowed by Brazilian IRB
  • response by mail was low
  • difficult to monitor results from the second test

• Monitoring & Evaluation protocol should evaluate cost-effectiveness
PROFILAXIA
PRÉ EXPOSIÇÃO
Brasil
• **Projeto Demonstrativo**
  – Registro no Clinicaltrials.gov NCT01989611

• **Objetivos Primários**
  – Avaliar a utilização, segurança e capacidade de implementação de PrEP sem custo para HSH e mulheres transgêneros no contexto do Sistema Único de Saúde (SUS).

• **Objetivos Secundários**
  – Conhecimento da PrEP
  – Adesão por níveis séricos de TDF
  – Dano social
  – Compensação de risco
  – Fatores relacionados com adesão
PACIENTES E MÉTODOS

Abordados
- Indivíduos recrutados nos centros FIOCRUZ-RJ, CRT-SP and USP-SP
  - Fiocruz e CRT: auto-referência ou convidados para participação durante testagem para HIV ou profilaxia pós-exposição (PEP)
  - USP: auto-referência

Elegíveis
- Descrição do risco sexual (≥ 2 parceiros sexuais anais sem uso de preservativo OU ≥ 2 intercursos sexuais anais com parceiro infectado pelo HIV OU diagnóstico de doença sexualmente transmissível (DST) nos últimos 12 meses
  - Teste rápido anti-HIV = negativo

Triados
- Avaliação dos hábitos de vida
- Carga viral HIV (HIV RNA)
- Avaliação clínica
- Avaliação da função renal
- Testagem para HBV e HIV

Incluídos
- 45 dias após visita de rastreamento
  - Avaliação clínica e hábitos de vida + testagem para DST + testagem para HIV
  - Carga viral HIV (HIV RNA)
RESULTADOS

1187 indivíduos entrevistados

29 ANOS foi a idade mediana dos participantes (IQR 24-36)

56.2% eram Não-brancos

63.4% tinham Ensino superior ou mais

95.3% eram HSH e 4.7% TGW

9.8% foi a prevalência infecção pelo HIV
Graphic 1: Have you heard of …for preventing HIV?
Graphic 2: Very interested in using ....for HIV prevention if available in SUS
Abordados
N=1270

Potencialmente Elegíveis no pre-screening (PEPS)
N=753

Rastreados
N=503

Incluídos
N=450

Utilização de PrEP (UPTAKE)
60.9%

1 Inegíveis no rastreamento (n=8) e inclusão(n=7) → (450/738)*100
NÍVEIS DE DROGA NA SEMANA 4: DBS

- <2 doses/week: 5,9
- 2-3 doses/week: 15,6
- >=4 doses/week: 78,5
Latin America PrEP Demonstration Project

- Brasil, Peru and Mexico
- 7500 MSM/TGW
- Daily Truvada
- Sponsored by UNITAID
• Recent advances in HIV prevention have aimed to expand the range of effective approaches and to promote individuals’ autonomy and choice
• Risk perception is a key element in the demand step of the prevention cascade
• Leverage community education on combination prevention