State of the HIV/TB Epidemic: Opportunities and Challenges

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HIV and TB: A deadly synergy from the start

TB defined AIDS

AIDS shaped TB
Global Response Part I – a slow response

Scientific Gaps

- Diagnosis
- Epidemiology
- Use of ART
  - When to start ART
  - What to start
  - Immune reconstitution
- TB/HIV care delivery

Politics

- TB avoid HIV care
  - Overburdened
- HIV unwilling to treat TB
  - Overburdened
  - Access to TB drugs limited
- Funding silos for HIV and TB
Global Response, Part II

- **Prevention**
  - INH preventive therapy

- **Diagnosis**
  - HIV testing for persons with TB
  - TB screening in HIV+ persons

- **Treatment of HIV/TB**
  - Bactrim prophylaxis
  - Start antiretroviral therapy

- **Programmatic**
  - Joint HIV/TB planning

Reduce AIDS TB deaths by 50% by 2015 – UNAIDS High Level Political Declaration (2011)
INH preventive therapy is increasing, but still less than a 25% of persons in care are receiving it.

**FIGURE 7.8** Provision of isoniazid preventive therapy (IPT) to people living with HIV without active TB, 2005–2011
For active TB, rates of HIV testing dramatically increased.

**FIGURE 7.2** Percentage of TB patients with known HIV status, 2004–2011

- **African region**
- **Global**
- **Regions outside Africa**

Global TB report, 2012
High HIV testing in TB in Africa, but still significant gaps

FIGURE 7.3  Percentage of TB patients with known HIV status by country, 2011*

* Data for the Russian Federation are for new TB patients only.

Global TB report, 2012
Most TB patients receiving co-trimoxazole, but less than half receiving ART

FIGURE 7.5 Percentage of TB patients with known HIV status who were HIV positive, and percentage of HIV-positive TB patients enrolled on co-trimoxazole preventive therapy (CPT) and antiretroviral therapy (ART), 2006–2011

- The solid lines show values for countries that reported data. The shaded areas show upper and lower limits when countries that did not report data are considered.
Global heterogeneity in ART access in TB patients

**FIGURE 7.6** Percentage of HIV-positive TB patients enrolled on antiretroviral therapy (ART), 2011
1.3 Million lives saved with HIV/TB interventions, but this is still not enough

**FIGURE 7.9** Estimated number of lives saved globally by the implementation of TB/HIV interventions, 2005-2011. The blue band represents the uncertainty interval.
430,000 HIV associated TB deaths in 2011

25% of AIDS and 30% of TB deaths; majority in Africa
Over 80% of HIV-TB in sub-Saharan Africa

WHO Global Tuberculosis Control 2011
Build the Bridge to Eliminate TB deaths
Opportunities within reach

- New evidence that ART is extraordinarily effective to prevent TB
- New evidence that IPT can add to ART protection
- New evidence that early ART reduces mortality in TB patients
- New innovations in TB testing
- New TB drugs in the pipeline
Key Points about INH prevention in the HIV population

- INH reduces TB risk
- Continuous (vs 6 month) INH has benefit in high TB endemic region
- Ruling out TB can be accomplished with screening algorithm
- INH has benefit regardless of PPD skin test
- INH remains underutilized

Akolo. 2010, Cochrane review
ART most powerful prevention for TB: 40% reduction in probability of Death, AIDS or TB with immediate vs delayed ART

17 vs 33 cases of TB

HR: 0.6 [0.4, 0.9], P=0.01

Cohen, NEJM, 2011
Evidence from Malawi– Less TB with more ART

Zacharia, IJTLD, 2011
Combined ART and IPT provides greater reduction in TB risk

<table>
<thead>
<tr>
<th>Studies</th>
<th>IPT alone</th>
<th>ART alone</th>
<th>ART plus IPT</th>
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<tbody>
<tr>
<td>Brazil</td>
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<td>52</td>
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<td>Botswana</td>
<td>65</td>
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</tr>
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AIDS 2007: 21: 1441-8;

ART has significant impact when combined with IPT
For patients who get TB, Early ART reduces death (CAMELIA) or death/AIDS (STRIDE, SAPIT).

New TB Diagnostics: Xpert and urine LAM

Automated molecular assay: Xpert™ MTB/RIF

- >98% sensitivity in S+/C+
- ~70% sensitivity in S-/C+
- >99% specificity in C-
- Rifampin resistance Y/N
- Results within 2 hours

Urine point of care test
- Results in 20 minutes
- Works best in low CD4+ setting
- Adds to Xpert in smear – cases
New TB Drugs

New TB Drug Candidates

- TMC-207 (Bedaquiline)*
- OPC-67683
- PA-824
- SQ-109
- PNU-100480
- AZD5847

*TMC207 shortens time to culture conversion in MDR population

Diacon, NEJM, 2009

p=0.003
Challenges

- Pediatric HIV/TB
- Multi-drug resistant TB
- HIV/TB Care Cascade
- Financing

Global TB report, 2012

Percent MDR TB global cases
HIV/TB Care Cascade is a major challenge

1. Acquire TB
2. Diagnosed with TB
3. Prescribed adequate TB treatment
4. Begin ART (within 2 weeks of TB diagnosis)
5. Complete TB regiment + ART Adherence
6. Transition to long-term HIV care

Undiagnosed + Lost to Follow Up = Inadequate Care
Action required at the policy, clinical and community level to build the bridge

- **Global Fund** - support HIV/TB funding
- **National TB and HIV programs**
  - Revitalize and strengthen HIV/TB coordinating bodies
  - Harmonize HIV and TB policies— if in disagreement, fix at a consultation
  - Set time bound national targets
- **Country Coordinating Mechanisms**
  - Commission nationwide assessment to examine status, progress and scale up of HIV/TB activities and to solicit locally acceptable solutions
- **Technical agencies and parties**
  - Assist countries in revision of national policies to be in line with the NEW evidence
  - Support national consultation to unblock policy and programmatic bottleneck

From the HIV/TB Global Fund Technical Working Group, 2012
Key elements at the clinical front to build the bridge to reduce HIV/TB deaths

- Prevent HIV: combination prevention
- Prevent TB in HIV: ART, INH
- Diagnose and treat TB and MDR TB
- Start ART rapidly for HIV/TB co-infection
- Fix the HIV/TB treatment cascade
  - Expand new diagnostics and case finding
  - Link to HIV/TB care and start ART
  - Retain and transition HIV/TB patients to chronic HIV care

Accelerate activities by applying the evidence
And setting up systems that speak to the community needs
Thank you

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