Increasing Uptake of Antiretroviral Therapy among HIV-Positive TB Patients Receiving Co-Located Services in Swaziland

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The findings and conclusions in this presentation are those of the authors and do not necessarily represent the views of the USAID or CDC and the USG
Background

- Over the last decade, the MOH and partners worked to:
  - Strengthen TB DOTS, decentralize TB services to PHC clinics and foster linkages between communities and Health facilities: TB diagnostic units
  - Increase access to comprehensive, decentralized and quality TB/HIV services by increasing integration of TB and HIV: regional and facility levels
  - Institutionalize modern quality improvement approaches as an integral part of health care: Facility and National Level

1. WHO Global TB Report 2015
Timeline of Integration

- **2007–8**: Creation of the TB/HIV National Coordinating Committee
  - Creation of National Collaborative TB/HIV Policy Guidelines and M&E plan
  - Roll out of collaborative TB/HIV activities and one stop shops
  - Trainings for HCWs in public facilities
  - Development of advocacy, social mobilization and communication strategy
  - Implementation research to inform policy and guidelines

- **2009–10**: Regional TB/HIV committees formed
  - Training of HCWs in NGOs and private sector clinics on collaborative activities
  - Intensive joint community campaign
  - Launch of advocacy, social mobilization and communication strategy
  - Kick TB Campaign (sport and social awareness linked to FIFA World Cup)
  - TB case finding and treatment community campaigns in Hhohho

*Source: Dr. Samson Haumba, URC*
Timeline of Integration

- **2009–10:** Declaration of TB as an emergency, and adoption of the full ART/TB integration model

- **2012-3:**
  - Adaptation of revised WHO guidelines for collaborative TB/HIV activities, including adoption of HIV test and start for TB patients and HCW training
  - Swaziland hosts high level meeting on TB/HIV for SADC Ministers of Health, UNAIDS, Stop TB Partnership and WHO to raise awareness

- **2014:** Evaluation of TB/HIV activities

- **2007-Present:**
  - TB/HIV NCC quarterly meetings
  - Decentralization to regions (varying levels of success)

*Source: Dr. Samson Haumba, URC*
Key Results: Percent Uptake of Cotrimoxazole and ART Among TB Patients Co-infected with HIV at URC Supported Sites

Changes tested:
- Trainings: IMAI, 3I, TB
- Technical support from ART Clinician
- Development of Patient Flow chart
- Active involvement of TB/HIV collaborative team - NCC

<table>
<thead>
<tr>
<th># of tested</th>
<th># on ART</th>
<th># of all HIV +ve TB patients</th>
<th>CPT Uptake</th>
<th>ART uptake</th>
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</thead>
<tbody>
<tr>
<td>FY08 Q1</td>
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<td>FY08 Q3</td>
<td>FY08 Q4</td>
<td>FY09 Q1</td>
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<td>2026</td>
<td>97</td>
<td>0</td>
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<td>2277</td>
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<td>2016</td>
<td>96</td>
<td>0</td>
</tr>
<tr>
<td>2028</td>
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</tr>
<tr>
<td>2028</td>
<td>780</td>
<td>1804</td>
<td>96</td>
<td>0</td>
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</table>

93% 100%
49% 50%
30% 40%
20% 30%
10% 20%
0% 10%
0% 10%
0% 10%
0% 10%
0% 10%
0% 10%
0% 10%
0% 10%
0% 10%
0% 10%
2012 WHO TB/HIV policy recommendations

1. ART should be started in all TB patients living with HIV irrespective of their CD4 counts (strong recommendation, low quality of evidence).

2. Antituberculosis treatment should be initiated first, followed by ART as soon as possible within the first 8 weeks of treatment (strong recommendation, moderate quality of evidence). Those HIV-positive TB patients with profound immunosuppression (e.g. CD4 counts less than 50 cells cells/mm$^3$) should receive ART immediately within the first 2 weeks of initiating TB treatment.

Results: ART uptake among TB/HIV Comprehensive Care Centres vs National ART uptake

ART Uptake in 4 Comprehensive Care Centres (CCC) vs the National ART uptake from Oct 2012 - Jun 2014

Interventions
- QIPs
- Coaching and mentoring
- Revised patient flow in clinic to cater

Denominator 1: Number of TB/HIV co-infected patients registered during the period in 4 CCC’s

Denominator 2: Number of TB/HIV co-infected patients registered during the period nationally
Evaluation of the timeliness of ART initiation relative to TB treatment for HIV-positive TB patients in Swaziland

- **Setting:** 11 care and treatment facilities
  - Purposefully selected to represent all 4 regions and public facility types (clinic, health center, hospital)
  - Provided both TB and HIV services and operational ≥ 1 year

- **Population:** HIV-positive TB patients identified from TB registers
  - ≥ 15 years and seen between July 1–Sept 30, 2014
  - If not documented in TB registers or treatment cards, HIV status determined from HIV program registers
  - Clinical history retrospectively assessed until TB treatment outcome (cure, treatment completion, treatment failure, default, death, transfer out)
Methods

Data analysis
- Descriptive statistics to describe patient demographic information, clinical characteristics and timing of ART after TB treatment initiation
- Logistic regression (adjusted for within-clinic correlation) to identify predictors of timely ART

“Timely ART” was defined in this study as
- Within 8 weeks
- Within 2 weeks of TB treatment initiation if CD4 <50/µL or missing (assuming possibly <50/µL)
Results
Demographic and Clinical Characteristics of the HIV+ TB Patients

- 466 HIV+ TB patients
  - 240 male (52%), 225 female (48%)
  - Median age 36 (IQR 31–43) for men, 32 (IQR 27–40) for women
  - Facility type: 35% clinic, 24% health center, 41% hospital

- Median CD4 at TB treatment initiation 137/µL (IQR 58–268)
  - Missing for 24% of patients
Results
Timing of ART Uptake for 466 HIV+ TB Patients

- 189 (41%) already on ART
- 2 (0.4%) never started ART
- 1 (0.2%) did not have timing of ART documented
- 274 (59%) started ART after TB treatment initiation
  - Only 5 (1.8%) did not receive ART within 6 months
  - Median time to ART was 15 days (IQR 14–28)
Results

Timing of ART after TB Treatment Initiation, by CD4 Count (n=274)

89.8% of the 274 patients started ART within 8 weeks of TB treatment initiation.
Results

Timing of ART after TB Treatment Initiation, by CD4 Count Count (n=274)

88.6% of those with a CD4 ≥50/µL started ART within 8 weeks of TB treatment initiation
Results

Timing of ART after TB Treatment Initiation, by CD4 Count Count (n=274)

Only 45.5% of those with a CD4 <50/µL started ART within 2 weeks.
Results

Predictors of Timely ART Uptake for 466 HIV+ TB Patients

- Higher CD4 associated with better odds of receiving timely ART
  - *Recall: guideline-based criteria for “timely ART” differed by baseline CD4*

<table>
<thead>
<tr>
<th>Variable</th>
<th>N (%)</th>
<th>OR (95% CI)</th>
<th>p-value</th>
<th>AOR (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD4, TB Treatment Start</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;50/µL</td>
<td>25 (45.5)</td>
<td>ref</td>
<td>&lt;.0001</td>
<td>ref</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>50-200/µL</td>
<td>91 (89.2)</td>
<td>9.93 (3.75, 26.28)</td>
<td></td>
<td>11.32 (4.98, 25.77)</td>
<td></td>
</tr>
<tr>
<td>&gt;200/µL</td>
<td>64 (87.7)</td>
<td>8.53 (3.91, 18.63)</td>
<td></td>
<td>10.38 (4.89, 22.03)</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>21 (47.7)</td>
<td>1.10 (0.48, 2.49)</td>
<td></td>
<td>1.15 (0.40, 3.29)</td>
<td></td>
</tr>
</tbody>
</table>

*N (%) = number and proportion of patients receiving timely ART, defined as within 8 weeks if CD4 ≥50/µL or within 2 weeks if CD4 <50/µL or missing

- Timeliness of ART not significantly associated with: gender, age, facility or patient type, disease site and missed appointments
### Results

#### TB Outcomes among HIV+ TB Patients

- 86% of 274 patients who began ART after TB treatment initiation achieved TB cure or treatment completion
  - Similar proportion to those who began ART before TB treatment initiation
  - TB treatment outcomes not significantly associated with timely ART initiation

<table>
<thead>
<tr>
<th>TB Treatment Outcome</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cured</td>
<td>154</td>
<td>56.2</td>
</tr>
<tr>
<td>Completed</td>
<td>83</td>
<td>30.3</td>
</tr>
<tr>
<td>Failure</td>
<td>7</td>
<td>2.6</td>
</tr>
<tr>
<td>Default</td>
<td>8</td>
<td>2.9</td>
</tr>
<tr>
<td>Died</td>
<td>16</td>
<td>5.8</td>
</tr>
<tr>
<td>Transfer Out</td>
<td>5</td>
<td>1.8</td>
</tr>
<tr>
<td>Missing</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>274</strong></td>
<td></td>
</tr>
</tbody>
</table>
Discussion

Successes

- 99% of HIV-positive TB patients on ART by 6 months
  - Compare with 58–80% uptake in similarly integrated sub-Saharan African settings (even lower in non-integrated settings)*

- 90% initiated ART within 8 weeks; median time 15 days
  - Compare with 59–78% and median time 34–75 days in other settings*
  - Possible effect of task-shifting and TB/HIV integration efforts

Discussion

Challenges

- ~60% patients with a known CD4 <50/µL did not receive ART within 2 weeks (timing of ART similar regardless of CD4 cell count)
  - Room for improvement

- CD4 not documented at TB treatment initiation in ~25% patients
  - Consistent with reported reagent stock outs/laboratory shortages
Limitations

- Purposeful site-selection
- Retrospective chart review
- Unable to assess longer-term HIV treatment outcomes
Conclusions

- This study shows that very high levels of timely ART uptake for HIV-positive TB patients *can* be achieved in resource-limited, but integrated settings
- Improvements needed to identify and rapidly treat patients with most advanced disease, who are in greatest need for earlier ART
What Next?

- This data is being used as an assessment of program quality

- Efforts are occurring in-country to address delayed ART uptake among patients with CD4 counts less than 50 cells/µL and the high degree of missing CD4 cell counts