HIV Care Continuum: Strategies to Optimize Outcomes

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Outline

• Background - HIV care continuum
• HIV prevention continuum
• Implementation Science - Strategies to optimize retention in the care continuum
• Standardized reporting linkage impact
• Discussion
Background: HIV care continuum

- ART has the potential to decrease HIV incident cases but requires
  - High coverage of HIV counseling and testing (HCT)
  - High linkage of HIV positive persons to care
  - High ART initiation and adherence
  - High levels of viral suppression at population level – measure of program effectiveness

McNairy et al AIDS 2012
Continuum adapted to individuals

- Antigen/PCR testing
- Rapid ART initiation - guidelines
- Partner testing priority

- ART eligibility
- Link to care/ART

- ART eligibility
- Link at care/ART
- Linkage support through peers or lay counselors
Integrating HIV prevention and care

- For HIV+ and HIV- persons, integration of biomedical, behavioral and structural interventions are needed

Adapted from McNairy et. al. AIDS, 2014
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Strategies to strengthen linkages

- Follow-up visits
- Peer support groups
- Two way SMS
- Outreach

Strategies to strengthen linkages

At population level, community HTC:
- Increased HTC coverage (RR=7.1)
- Trend towards reduced HIV incidence (RR=0.86)

Relative to facility based HTC, community based HTC:
- Increased uptake (RR=10.7)

Following community HTC:
- 80% received CD4 count
- 73% ART eligible persons initiated ART

Strategies are needed to support linkage & retention after HTC in the continuum of care.

Strategies to strengthen linkages

- **HTC**
  - POC CD4 count
  - Referral

- **POC CD4**
  - Follow-up visits

- **Follow-up visits**

- **Counseling**
  - Peer support groups
  - Two way SMS
  - Outreach

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### HIV testing to CD4 testing

- Studies: 2
- Odds ratio: 4.10 (3.50, 4.90)

### CD4 testing to receipt of result

- Studies: 4
- Odds ratio: 2.80 (1.50, 5.60)

### CD4 to ART initiation

- Studies: 6
- Odds ratio: 1.80 (1.10, 2.90)

### ART initiation among eligible patients

- Studies: 4
- Odds ratio: 0.98 (0.80, 1.30)

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POC CD4:
- Increases retention in care
- Decreases time to ART eligibility assessment
- Which may result in increased ART initiation

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Strategies to strengthen linkages

Community support groups
- Uganda & Kenya – home delivery of ART by CHWs or volunteers
- Mozambique – self-formed community-based ART groups

Text message interventions to promote ART adherence
- Increased adherence with SMS (OR=1.39)
- Improved with two-way, less frequently than daily, included personalized message content & matched participant ART schedule
- Improved VL and/or CD4 outcome (OR=1.56)

Aims of community-based HTC and linkages project

• Ankole region, southwest Uganda, and KwaZulu-Natal, South Africa
• Sept. 2011 – May 2013
• To estimate the impact of a package of interventions (community-based home HTC, point-of-care CD4 testing, referral to care, follow-up visits) on:
  – Linkage to HIV clinic
  – ART initiation following national guidelines
  – Viral load suppression 12 months after testing
Methods: Intervention package (1)

Community Sensitization → Household Consent → Individual
  - Consent
  - Questionnaire
  - Pre-test counseling
  - HIV test

HIV+ → Linkage to care and treatment

HIV- → Linkage to prevention
Methods: Intervention package (2)

**HIV+**

- Post-test counseling
- POC CD4 test
- Referral for HIV care & ART
- Follow-up visits at month 1 and then quarterly

Referral card with CD4 result and symptom screens for symptomatic HIV, STIs and TB
Baseline results – achieved high HCT coverage

<table>
<thead>
<tr>
<th>Baseline findings</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults tested</td>
<td>3,393 (96%)</td>
</tr>
<tr>
<td>HIV+ identified</td>
<td>635 (19%)</td>
</tr>
<tr>
<td>On ART at enrollment among all HIV+ participants</td>
<td>254 (40%)</td>
</tr>
<tr>
<td>Known HIV+ not on ART</td>
<td>152 (24%)</td>
</tr>
<tr>
<td>Newly identified HIV+</td>
<td>229 (36%)</td>
</tr>
<tr>
<td>Median CD4 baseline (not on ART)</td>
<td>456 (IQR 289-631)</td>
</tr>
</tbody>
</table>
96% clinic visit uptake at 6 months
(among HIV-infected participants not on ART at baseline)

No. in followup:
Known HIV+ 152 152 71
Newly diagnosed HIV+ 229 227 90

Months since HBCT
20 4 0
21 5 2

Log-rank p-value: 0.70
74% ART uptake among eligible participants (CD4 count ≤350 cells/µL and not on ART at enrollment)
Population viral load suppression increased at 12 months

<table>
<thead>
<tr>
<th>Change in suppressed VL (&lt;1,000 c/mL)</th>
<th>Baseline</th>
<th>M12</th>
<th>Change</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>All HIV+ participants</td>
<td>50%</td>
<td>65%</td>
<td>15%</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>CD4≤350 (excluding baseline ART)</td>
<td>8%</td>
<td>61%</td>
<td>53%</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
Limitations

• Household residents enrolled – did not account for migration e.g. for employment
• Lower uptake of testing among couples, men and youth in South Africa
• Data not linked to clinic records
• ART uptake not evaluated from the provider perspective
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Alternative Cascade

% of adult HIV patients

0% 100%

390,603

Time (months) since HIV care enrollment

0 months 3 months 6 months 12 months

LTF (Pre-ART)

LTF (ART)

Death (Pre-ART)

Death (ART)

Poor Outcomes

McNairy, M., et. al. CROI, 2014
Alternative Cascade Approach

• All patients followed across time
  – Each step begins from enrollment, not from previous step
  – Outcomes of the entire cohort are described

• Outcomes are categorized

- Optimal: Retained, Transferred
- Suboptimal: Retained but did not receive optimal care, missing data
- Poor: LTF, Death

McNairy, M., et. al. CROI, 2014
Reporting outcomes of linkages to HIV care: Comparison for home HTC and linkages study

Strengths
- Measures drop-off between steps
- Common desired endpoint for ART patients

Alternative
- Follows all patients (Pre-ART and ART)
- Identifies those at high risk of poor outcomes
- Includes time

McNairy, M., et. al. CROI, 2014
Discussion

• Review of evidence for linkage strategies:
  – Community-based HTC achieves high uptake of HIV testing
  – POC CD4 decreases time to ART eligibility
  – Two-way SMS & community-based support groups increase retention and ART adherence

• Our findings from rural Uganda & South Africa - Community-based home HTC, POC CD4 testing, referral to care, and follow-up visits achieved:
  – High testing coverage
  – Identified HIV+ persons unaware of serostatus & at high CD4 count
  – Facilitated linkage to HIV care and ART initiation by 3 months
  – Significant increase in viral suppression by 12 months
Key questions

• How to measure and report outcomes:
  – For HIV+: proportion suppressed over time
  – For HIV-: proportion linked to MC, PrEP
  – Use the alternative cascade to track poor outcomes

• Need implementation science studies to evaluate the incremental effects (and costs) of linkage & retention strategies

• Specifically, need pre-ART strategies to retain individuals in HIV care

• Strategies to identify re-link persons who migrate or are otherwise lost to follow-up
Thank you

Study Participants
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