Feasibility and Acceptability of Health Communication Interventions Within a Combination Intervention Strategy for Improving Linkage and Retention in HIV Care in Mozambique

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ICAP at Columbia University
Outline

• Effectiveness Study and Combination Intervention Strategy
• Process Evaluation
• Results
  – Dose Delivered
  – Dose Received
• Discussion and Conclusions
Engage4Health Effectiveness Study

- Evaluate effectiveness of combination intervention strategy compared to standard of care in improving linkage to and retention in care among adults following HIV diagnosis
- Cluster-randomized implementation science study at 10 primary health clinics in Mozambique
  - Urban and rural sites
  - 2,004 adults ≥18 years of age enrolled in VCT clinic
Interventions

Structural

– **Point of care CD4 testing:** PIMA CD4 count in VCT clinic, same day return of results

– **Accelerated ART initiation:** Initiation within 1 week

– **Non-cash financial incentives:** Airtime vouchers for linkage in 1 month and retention at 6 & 12 months

Health Communication

– **Modified pre-ART counseling:** One ART preparatory counseling session in VCT clinic for ART-eligible clients

– **SMS reminders:** Routine SMS health messages and appointment reminders
Process Evaluation

• Unique opportunity to:
  – Compare feasibility and acceptability of *health communication* versus *structural* interventions within a combination intervention strategy
  – Document and assess “real-world” implementation successes and challenges of different interventions types
Process Evaluation Design

• Summative process evaluation
  – Dose delivered (feasibility)
  – Dose received (acceptability)

• Used Steckler & Linnan framework and Saunders, Evans & Joshi guide

Data Sources

- Data abstracted from pre-existing sources
- **Facility-level:** CD4 testing and pre-ART counseling
  - 5,934 adult clients testing HIV-positive at intervention sites
- **Participant-level:** All five interventions
  - 1,237 study participants enrolled at intervention sites

<table>
<thead>
<tr>
<th></th>
<th>Electronic Patient Medical Records</th>
<th>Study Records and Reports</th>
<th>Frontline SMS Database</th>
<th>Participant Interviews 1 and 12 Months After Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dose Delivered</strong></td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td><strong>Dose Received</strong></td>
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</tbody>
</table>
Dose Delivered: Structural Interventions
## Point-of-Care CD4 in VCT Clinic

<table>
<thead>
<tr>
<th>Facility-level: Clinic patients with CD4 test and results available and provided to the patient in VCT clinic immediately following HIV diagnosis</th>
<th>N (%)</th>
<th>Range across facilities (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4382 (74%)</td>
<td>143-1400 (67%-79%)</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Participant-level: Study participants for whom the POC CD4 test results were used to determine ART eligibility for ART initiation</th>
<th>N (%)</th>
<th>Range across facilities (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>454 (83%)</td>
<td>1-75 (40%-100%)</td>
<td></td>
</tr>
</tbody>
</table>

- No meaningful improvement in CD4 testing over time
- Implementation challenges
  - Machine malfunctions
  - Facility power outages
  - Staff shortages, absenteeism and turnover
  - Provider mistrust of POC CD4 results
Accelerated ART Initiation

<table>
<thead>
<tr>
<th>Participant-level: Study participants with follow-up appointment scheduled within 1 week of HIV test</th>
<th>N (%)</th>
<th>Range across facilities (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study participants with follow-up appointment scheduled within 1 week of HIV test</td>
<td>1134 (92%)</td>
<td>33-296 (83%-100%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Participant-level: Study participants who initiated ART within 1 month of HIV test among those eligible</th>
<th>N (%)</th>
<th>Range across facilities (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study participants who initiated ART within 1 month of HIV test among those eligible</td>
<td>366/683 (53%)</td>
<td>10-131 (43%-60%)</td>
</tr>
</tbody>
</table>

- Implementation challenges
  - Receptionist resistance to opening patient file
  - High patient volume; appointment backlog
  - Clinicians wanted lab results or additional pre-ART counseling prior to ART initiation
## Financial Incentives

<table>
<thead>
<tr>
<th>Participant-level: Eligible study participants who attended appointment for HIV care and treatment during the appropriate follow-up periods -- 30 days, 6 months, 12 months -- and received financial incentive</th>
<th>N (%)</th>
<th>Range across facilities (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 days</td>
<td>401/493 (90%)</td>
<td>18-104 (75%-100%)</td>
</tr>
<tr>
<td>6 months</td>
<td>214/240 (90%)</td>
<td>8-60 (78%-100%)</td>
</tr>
<tr>
<td>12 months</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

- 90% of participants received 1\textsuperscript{st} incentive; 43% received 2\textsuperscript{nd} incentive
- Implementation challenges
  - Participants ineligible
  - Participant confusion/lack of time to collect incentive
  - Study staff errors in determining eligibility
Dose Delivered: Health Communication Interventions
# Modified Pre-ART Counseling

<table>
<thead>
<tr>
<th>Facility-level: Individuals with first pre-ART counseling session provided at VCT clinic immediately following POC CD4 count among those with CD4 &lt;350 and eligible to initiate ART</th>
<th>N (%)</th>
<th>Range across facilities (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2481 (98%)</td>
<td>112-770 (95%-100%)</td>
</tr>
</tbody>
</table>

| Participant-level: Average of two or fewer pre-ART counseling sessions prior to ART initiation | 1.6 sessions | 1 - 2.3 sessions |

- Implementation challenges
  - Limited availability of counselors in VCT clinic
  - Clinicians requested additional pre-ART counseling despite modified delivery
- Clinician acceptance increased over time
## SMS Health Messages & Appointment Reminders

<table>
<thead>
<tr>
<th></th>
<th>N (%)</th>
<th>Range per participant (mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Participant-level:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekly, monthly, and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pre-appointment reminders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sent at appropriate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>frequency by study staff</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekly</td>
<td>1028 (83%)</td>
<td>1-8 (mean: 3.75)</td>
</tr>
<tr>
<td>Monthly</td>
<td>1105 (89%)</td>
<td>1-15 (mean: 10.73)</td>
</tr>
<tr>
<td>Pre-Appointment</td>
<td>679/1,181 (57%)</td>
<td>1-10 (mean: 2.6)</td>
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</tbody>
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### Implementation challenges

- Delayed data entry of appointment dates
- Challenges programming SMS platform for automatic message delivery
- Message delivery data lost during platform upgrade
# Dose Received

## Most useful for linkage 1 month after diagnosis

<table>
<thead>
<tr>
<th></th>
<th>Intervention (N=591)</th>
<th>Intervention + Financial Incentive (N=418)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N (%)</td>
<td>N (%)</td>
</tr>
<tr>
<td><strong>Structural</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>POC CD4 count</td>
<td>258 (43%)</td>
<td>174 (41%)</td>
</tr>
<tr>
<td>Financial incentive</td>
<td>N/A</td>
<td>12 (3%)</td>
</tr>
<tr>
<td><strong>Health Communication</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-ART counseling</td>
<td>188 (32%)</td>
<td>165 (39%)</td>
</tr>
<tr>
<td>SMS messages/reminders</td>
<td>131 (22%)</td>
<td>53 (13%)</td>
</tr>
<tr>
<td><strong>Other Responses</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>4 (1%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Do not know/Refused</td>
<td>10 (2%)</td>
<td>14 (4%)</td>
</tr>
</tbody>
</table>


Discussion

• Unique barriers for each intervention type
• High feasibility of health communication interventions
  – Higher dose delivered than structural interventions
  – Fewer documented barriers to delivery
  – Improved dose delivered over time
• Dose Received
  – Acceptability of both intervention types for linkage
  – Higher acceptability of health communication (SMS reminders) than structural intervention (financial incentives) for retention
**Dose Delivered: Facility Implementation**

**Point of care CD4 testing & accelerated ART initiation**
- New equipment + additional training
- Modified patient flow
  - Task-shifting of CD4 testing to VCT staff
  - Coordination between HCW to implement interventions
- Difficulty absorbing increase in eligible ART patients

**Modified pre-ART counseling**
- Only modified location and timing of service delivery
- Counselors already trained and providing pre-ART counseling
- Initial HCW resistance improved over time
Dose Delivered & Dose Received

SMS reminders and financial incentives both delivered to participants over time, but differences in implementation and acceptability

**SMS reminders**
- Dose delivered and dose received improved over time
  - Challenges with SMS platform addressed
  - More positive perceptions for retention than linkage
- Highlights importance of user-friendly platform and timing of delivery

**Financial incentives**
- Dose delivered decreased over time
- Perceived as least useful intervention for linkage and retention
- Highlights challenges in determining appropriate incentive type and delivery method
Strengths and Limitations

• Strengths
  – Compared two intervention types, each with several individual interventions
  – Use of multiple, complementary data sources
  – Real-world setting

• Limitations
  – Comparison of intervention types not an original study objective
  – Data from electronic patient medical records of variable quality
Conclusions

• Unique challenges of each intervention type
• Lessons learned for implementation of interventions within combination intervention strategy for improving HIV care continuum
• Supports growing evidence-base on feasibility and acceptability of health communication interventions
Thank you

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Ilesh Jani

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Laurence Ahoua
Matthew Lamb
Tal Gross

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