Evaluation and process outcomes from an adherence intervention to support HIV pre-exposure prophylaxis (PrEP) adherence in HIV serodiscordant couples in Uganda

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Acknowledgements

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- *Participants and research teams* in Kabwohe, Tororo, and Kampala

- **Collaborators** at the University of Washington, DF/Net, and Massachusetts General Hospital/Harvard Medical School

- **Funding agency**: The Bill and Melinda Gates Foundation
Outline

- Relevant background information about the Partners PrEP study
- Process of developing a PrEP adherence intervention and core components of PrEP adherence intervention
- Overview of process data
- “Lessons learned” and implications for the future
Partners PrEP Study

  - Ancillary adherence study in Uganda at three of the nine study sites
  - DSMB recommended discontinuation of placebo on July 10, 2011.
    - 62% fewer infections in TDF group and 73% fewer infections in FTC/TDF group.
Ancillary Adherence Study (AAS)

- Goals: To determine the level, pattern, and predictors of PrEP adherence using objective adherence measures (e.g., MEMS, unannounced home pill counts, random drug levels).

- Preliminary AAS findings (*Haberer et al., CROI, 2012*):
  - 1,147 HIV negative participants enrolled
  - Median adherence: 99% by UPC and 92% by MEMS.
  - PrEP efficacy within AAS was 100% (95% CI 87-100%, p<0.001).
Ancillary Adherence Study: Intervention Aim

- To deliver an intervention targeted to HIV-negative participants with low (<80%) unannounced pill count adherence
  - To examine process of intervention delivery and predictors of intervention success
  - Refine and enhance existing adherence counseling messages to better meet specific needs of participants
  - Develop the best adherence counseling protocol based on behavioral science, site experience, and relevant cultural concerns
- Product to be tested for efficacy in future trials
Intervention Fundamentals

- Intervention based on the work of Safren and colleagues on adherence to ART (*Safren et al.*, 1997; 2001; 2007)
  - Combines elements of Cognitive Behavioral Therapy (CBT) and Motivational Interviewing (MI)
- Modular / checklist format:
  - Standardized provision of information while still tailoring counseling messages to individual needs
  - Delivery by a variety of study staff members with various levels of training
  - Provides a reference for future counseling sessions
Intervention Development

- Iterative process of intervention development
  - Informal focus groups with study participants
  - Ongoing feedback from sites and counselors
  - Counselors trained over a two day-period; participate in monthly supervision calls and yearly site visits
Intervention Delivery

- After the intervention is triggered, counseling occurs in two phases:
  - With individual on PrEP
    - Monthly contact with interventionist
    - Number of sessions tailored and variable
  - With their HIV infected partner (optional)
    - Participant on PrEP dictates information to be shared with their partner
Intervention Content

- Module 1: Psychoeducation
- Module 2: Brief motivational interviewing
- Module 3: Assessment of family, community, social support and privacy concerns
- Module 4: Assessment of daily routine, and development medication schedule, reminder strategies
- Module 5: Identification of barriers to adherence
- Module 6: Brief problem-solving
- Module 7: Couples session
- Module 8: Follow-up sessions
<table>
<thead>
<tr>
<th>Enrollment Characteristics</th>
<th>HIV-1 seronegative enrolled; never triggered intervention N=1023</th>
<th>HIV-1 seronegative enrolled; triggered intervention* N=124</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual characteristics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female gender</td>
<td>491 (48%)</td>
<td>48 (39%)</td>
</tr>
<tr>
<td>Years of education</td>
<td>6 (3,7)</td>
<td>6 (3,9)</td>
</tr>
<tr>
<td>Age in years</td>
<td>34 (30,40)</td>
<td>32 (28, 38)</td>
</tr>
<tr>
<td>18-24</td>
<td>74 (7%)</td>
<td>14 (11%)</td>
</tr>
<tr>
<td>25-34</td>
<td>444 (43%)</td>
<td>58 (47%)</td>
</tr>
<tr>
<td>35+</td>
<td>505 (49%)</td>
<td>52 (42%)</td>
</tr>
<tr>
<td>Any income</td>
<td>916 (90%)</td>
<td>110 (89%)</td>
</tr>
<tr>
<td>Clinic visit of AAS enrollment**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>At PrEP enrollment</td>
<td>234 (23%)</td>
<td>56 (45%)</td>
</tr>
<tr>
<td>Months 1 - 6</td>
<td>164 (16%)</td>
<td>18 (15%)</td>
</tr>
<tr>
<td>Months 7-12</td>
<td>183 (18%)</td>
<td>19 (15%)</td>
</tr>
<tr>
<td>After month 12</td>
<td>442 (43%)</td>
<td>31 (25%)</td>
</tr>
</tbody>
</table>

*Participants shown who had <80% UPC adherence, but may not necessarily have received the intervention (N=101)
**Enrollment means when MEMS cap was issued.
## Partnership Enrollment Characteristics

<table>
<thead>
<tr>
<th>Partnership characteristics</th>
<th>HIV-1 seronegative enrolled; never triggered intervention N=1023</th>
<th>HIV-1 seronegative enrolled; triggered intervention* N=124</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>1012 (99%)</td>
<td>123 (99%)</td>
</tr>
<tr>
<td>Living together</td>
<td>1007 (98%)</td>
<td>122 (98%)</td>
</tr>
<tr>
<td>Number of years living together</td>
<td>8.8 (4.0, 16.0)</td>
<td>7.0 (2.8, 11.5)</td>
</tr>
<tr>
<td>Years known HIV discordant</td>
<td>0.8 (0.1, 2.3)</td>
<td>0.5 (0.1, 1.4)</td>
</tr>
</tbody>
</table>

*Participants shown who had <80% UPC adherence, but may not necessarily have received the intervention (N=101)
Number Enrolled = 1,147

Number of interventions triggered = 124 (10.8%)

Number of completed interventions = 101 (81.5%)

Number of participants who received intervention and had two F/U pill count = 66 (65%)

Adherence < 80% at F/U = 5 (7.5%)
Adherence > 80% at F/U = 61 (92.4%)
Lessons Learned

- Average length of sessions = 30.2 minutes
- Average number of intervention sessions = 6.8 (range = 1-16)
- Most frequently delivered modules across all sessions:
  - Reminder strategies 71.0%
  - Psychoeducation on adherence 71.0%
  - Review of sexual behavior 64.4%
  - Concrete medication schedule 51.4%
  - Problem-solving 45.2%
Lessons Learned

- Most frequently endorsed barriers across all sessions:
  - Travel 19.2%
  - Forgetting 18.0%
  - Perceived PrEP side effects 4.0%
  - Partner discord 3.8%
  - Stigma/privacy concerns 3.8%
- 58% of sessions indicated no barrier to adherence was identified
Lessons Learned

- Least frequently endorsed barriers across all sessions:
  - Missing clinic due to lack of transport 2.7%
  - Pill burden 1.9%
  - Missed clinic due to childcare or family matters 1.9%
  - Missing clinic to avoid loss of income 1.0%
  - Conflict between religious beliefs and study procedures 0.3%
  - Substance abuse 0.3%
Lessons Learned

Implementation of Intervention Skills

- Frequency:
  - 0: None (6%)
  - 1: Minimal (54%)
  - 2: Some (115%)
  - 3: Most (182%)
  - 4: All (37%)
  - 5: More than discussed (37%)

- Categorization:
  - 0: None
  - 1: Minimal
  - 2: Some
  - 3: Most
  - 4: All
  - 5: More than discussed
Conclusions and Future Directions

- Adapting evidenced-based treatment adherence interventions to PrEP adherence, with culturally-relevant topics is feasible and acceptable to counselors and participants.
  - Interventions developed in the clinical trial setting may differ than those delivered in the “real world”.
Conclusions and Future Directions

- Further follow-up will address efficacy and sustainability of increasing adherence after this intervention in those with <80% adherence to daily PrEP.
- Future research must identify PrEP users with low adherence for intervention and determine optimal duration of intervention to maximize PrEP effectiveness.
- Such work will increase confidence in interpretation of results from biomedical HIV prevention trials and will facilitate adherence and proper use of these strategies as PrEP becomes more available.