

15th International Conference on  
**HIV TREATMENT AND  
PREVENTION ADHERENCE**

# **HIV Treatment Adherence Interventions: A Cycle of Evolution and Change**

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- I am or have been funded by the US National Institutes of Health, Bill and Melinda Gates Foundation, and USAID
- I serve as a consultant to Merck



# Outline



- Scoping review of recent ART adherence interventions in Africa
- Comparison with prior interventions
- Thoughts on future work

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BEHAVIORAL-BIO-MEDICAL INTERFACE (RJ DICLEMENTE AND JL BROWN, SECTION EDITORS)

# A Cascade of Interventions to Promote Adherence to Antiretroviral Therapy in African Countries

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# Background



- We wanted to summarize adherence interventions in the Treat All era with the UNAIDS 90-90-90 goal in mind
- Adherence needs differ during uptake of ART, execution of adherence, and persistence over time that should be considered with adherence interventions
- We conducted a scoping review of recent ART adherence interventions to understand how best to support adherence at different stages in the HIV care cascade



# Methods



- Literature reviewed from January 2014 to December 2019
- Studies excluded if not conducted in the Treat All era
- Databases: PubMed, EMBASE, Cochrane, Web of Science
- Five steps in the adherence cascade
  - PLWH who know their status and have not yet initiated ART
  - All PLWH prescribed ART
  - ART users with known sub-optimal adherence
  - ART users with stable adherence
  - PLWH initiated on treatment who later disengaged

# Overview of findings



- 51 articles were identified, of which 27 were randomized controlled trials
- Most studies focused on ART initiation
- Most studies were conducted in East and Southern Africa
- Many studies involved specific patient populations

# PLWH with known status but not yet on ART



## General adult population

- Promising approaches
  - Home- or community-based services to identify PLWH and initiate ART
  - Point-of-care services (POC): CD4 plus counseling to facilitate care
  - Escorted transportation or reimbursement
  - Improved care within facilities (e.g., provider education, POC CD4)
  - Combination intervention strategies: modified counseling, SMS reminders, POC CD4, accelerated ART initiation, non-cash incentives, collocated services



# PLWH with known status but not yet on ART



## **General adult population**

- Home visits to encourage ART initiation had more modest effects
- No benefit seen with conditional economic incentives, weekly SMS, or trauma coping intervention

## **Adolescents and young adults**

Peer-delivered interventions are promising

- Interlinked community- and facility components (youth-oriented)
- May be mobile phone-based
- Involving targeted counseling and health education

# PLWH with known status but not yet on ART



## **Pregnant women and infants**

- Integration of PMTCT with primary care services is promising
- Expert mothers were associated with mixed results

## **Female sex workers**

- Mixed results were seen with community-based HIV testing, immediate ART or ART counseling
- Unclear benefit from combination prevention-treatment centers
- Peer delivery of self-HIV testing did not improve ART initiation

## **TB/HIV co-infection**

Signal of improved entry into care with identifying PLWH in care for TB

# All PLHIV prescribed ART



## General adult population

- SMS reminders alone and scheduled SMS reminders (not “as needed”) in combination with real-time adherence monitoring were beneficial
- Mixed findings with unconditional cash transfers; effect may be dependent on addressing food insecurity
- Peer support groups were modestly beneficial
- No benefit from culturally appropriate images to prime adherence

## Pregnant women

Effective to engage male partners in PMTCT



# ART users with sub-optimal adherence



## General adult population

- Promising approaches
  - Self-regulation counseling over the phone
  - Economic strengthening activity
  - Active visualization intervention
- Mixed results with enhanced adherence counseling. Improvements seen with:
  - Attention to depression, substance use and extended session duration
  - Options of reinforcement strategies (pill organizers, SMS or calls, home visits, self-help groups, limiting non-ART medications)

# ART users with stable adherence



## **General adult population and post-partum women**

- ART adherence clubs work as well as standard of care with less patient burden
- Retention higher for clinic-based clubs (versus community-based) in one study of general adults

# PLWH initiated on ART, later disengaged from care



## General adult population

- Training and supervision of expert patients and staff in best practices and telephone follow-up was marginally beneficial, especially for younger patients
- Face-to-face tracing by a peer worker helped for select patients, but was considered inefficient

## High risk groups

- Small cash transfers conditional on appointment attendance were promising for PMTCT (up to 6 weeks post-partum), especially among poorest women
- Food baskets for food insecure patients was also beneficial



# Summary



- Beneficial interventions were identified across stages of adherence
  - Community outreach and linkage to facilities
  - POC services
  - Integration of services
  - SMS reminders
  - Peer support with adolescents
  - Adherence clubs
  - Cash or food incentives with demonstrated need
  - Ongoing intensive counseling for those with viremia
  - Face-to-face tracing

# Summary caveats



- Most effects were dependent on context and/or methodology
- Evidence quality ranged widely with ~half of studies using RCT designs
- Gaps in research quality
  - Lack of specificity (e.g., “counseling”)
  - No use of theory
  - No objective adherence measures
- Details of each intervention are reviewed in the paper

# Ongoing and future work



Published protocols indicate much ongoing work

- Research is largely oriented in the community (e.g., with community workers, peers) and focused on high risk of virologic failure (e.g., men, youth, fisher folk)
- Other studies are targeting comorbid mental health disorders (e.g., depression)
- Community-based differentiated care delivery and expansion of adherence clubs to high-risk groups



# Reflection on prior interventions



Review - Antiretroviral Adherence Interventions

Volume **11** Issue **6** November/December **2003**

## *Review*

# **Antiretroviral Adherence Interventions: A Review of Current Literature and Ongoing Studies**

*Jane M. Simoni, PhD, Pamela A. Frick, PharmD, MPH, David W. Pantalone, AB, Barbara J. Turner, MD, MEd*

# Review of 2003 findings



- 21 published studies involving
  - Cognitive-behavioral therapy
  - Behavioral therapy
  - Directly observed therapy
  - Affective interventions
- Limited number of RCTs showed promise for
  - Pharmacist-led individualized intervention
  - Cognitive-behavioral educational intervention based on self-efficacy theory
  - Cue-dose training when combined with monetary reinforcement

# Summary of 2003 findings



- Ongoing work at the time offered “superior methodologic sophistication” and innovation:
  - Handheld devices
  - 2-way pagers
  - Alarmed medication vials
  - Enhanced social and emotional support



## Progress since 2003



- Lots of research has been done and is ongoing
- We have a more sophisticated approach to understanding the stages of adherence (i.e., what is needed when) and the differences among populations (e.g., adolescents, pregnant women)
- More recognition of the structural barriers to adherence

## Lack of progress since 2003



- Still struggle with rigor in study design, including use of theory and objective measurement of adherence
- Studies are often limited in scope for a problem that requires more comprehensive solutions

# Thoughts on future work



- The field is moving in the right direction in terms of recognizing the complexity and nuance of effective adherence support
- We face a challenge of relevancy in some settings where adherence is felt to be a solved problem and many settings are reaching the 90-90-90 targets
- However, even at 90-90-90, 27% of people are not suppressed and durability of suppression is a concern



# Thoughts on future work



Intervention research should continue to address key areas of concern

- Populations at high risk for non-adherence
- Health systems
- New formulations (e.g., injectables) which appear promising but may come with different challenges
- Continued attention to the key role of mental health



# Thank you!

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