

# Use of Unannounced Telephone Pill Counts to Measure Medication Adherence among Perinatally HIV-infected Adolescents and Young Adults

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# Conflict of Interest Disclosure

No real or apparent  
conflicts of interest to report.

# INTRODUCTION

- Medication adherence is challenging in HIV+ adolescents and young adults (AYAs).
  - ▶ Due to a host of developmental, social, individual and contextual reasons.
  - ▶ This is a developmental stage marked by increased autonomy, as well as, as experimentation with health and sexual risk-taking behaviors.
- Poor adherence in HIV+ AYAs is a public health issue.
  - ▶ Sub-optimal adherence places AYAs at risk for poor health outcomes.
  - ▶ HIV+ AYAs constitute the only age group for which mortality rates have increased (UNICEF, 2014).
  - ▶ In the United States, more than 94% of HIV+ AYAs are not virally suppressed (Zanoni & Mayer, 2014).
  - ▶ As AYAs engage in sexual risk-taking behaviors, they become more likely to transmit HIV to others.

# MEASURING ADHERENCE

- Accurate assessments of adherence are important for both research and clinical care.
- Current methods of assessment may not accurately reflect adherence.
  - ▶ Self-report
  - ▶ Electronic monitoring devices
- Thus, there is a need for an **objective** and **less costly method of assessment** to fully understand and address adherence problems in this population.

# UNANNOUNCED TELEPHONE PILL COUNTS

- **Unannounced telephone pill counts** have been shown to be a feasible, objective, and less costly.
  - ▶ Kalichman (2008) validated this method with primarily middle-aged adults ( $M= 46$  years old).
- This study is the first that we know of to implement unannounced telephone pill counts among perinatally HIV-infected (PHIV+) AYAs (18-27 years old).

# RESEARCH QUESTIONS

1. Can unannounced telephone pill counts be implemented with PHIV+ AYAs?
  - a) Do AYAs agree to participate and complete the protocol?
  - b) Are there differences in participant characteristics between the youth who are retained in the protocol and those who are not?
  - c) What are the challenges of implementing this procedure with AYAs?
2. How adherent are PHIV+ AYAs to their medication regimens?
3. What else can we learn about AYA medication taking behaviors through this procedure?

# CASAH

- **CASAH** (Child and Adolescent Self-Awareness and Health; R01-MH069133, PI: Claude Ann Mellins, Ph.D.)
  - ▶ NIMH-funded longitudinal study following PHIV+ and HIV-exposed but uninfected youth
  - ▶ Youth originally recruited when they were 9-16 years old from four major medical centers in NYC
  - ▶ Youth complete a psychosocial and mental health diagnostic interview every 12-18 months
- **CASAH is now in its 14<sup>th</sup> year**
  - ▶ Youth are now completing a 5<sup>th</sup> follow-up assessment
  - ▶ Youth are 18+ years old
  - ▶ Majority are Black/African-American and/or Hispanic/Latino reflecting epidemiology of the epidemic in US

# PILL COUNT METHODS

## ■ Eligibility:

- ▶ Enrolled in CASAH
- ▶ Prescribed ARV medication
- ▶ Have access to a phone
- ▶ Must not be enrolled in Directly Observed Therapy (DOT)

# PILL COUNT METHODS

- At the conclusion of the psychosocial interview, youth completes a pill count training session with a phone assessor.
  - ▶ How to read pharmacy label information
  - ▶ How to count their pills
  - ▶ Medication taking habits questionnaire
- Viral load (VL) data are abstracted from the participant's medical chart for the 12 months prior to the interview.

# PILL COUNT METHODS

## Materials



# PILL COUNT METHODS

- A phone assessor contacted the participant within a week of training for a **baseline pill count call (call #1)**.
- An additional pill count call was made approximately a month later.
- An adherence score was calculated using the information gathered during the current and previous call.
- For our protocol, two additional monthly calls were made, resulting in three adherence scores.



# RESULTS:

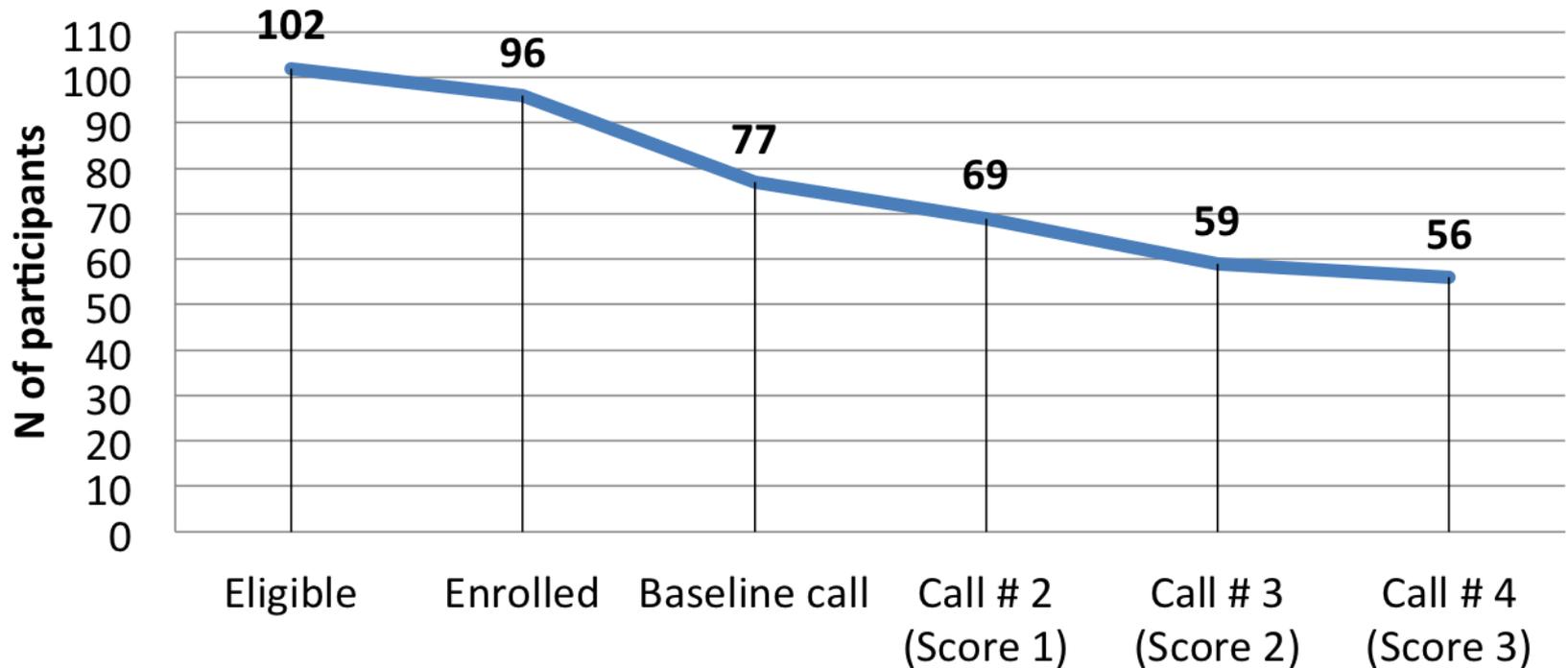
## SAMPLE CHARACTERISTICS

- 114 PHIV+ AYAs completed the 5<sup>th</sup> CASA-H follow-up interview (as of 12/18/15)
  - ▶ **12 were ineligible** [i.e. not on medication ( $N=4$ ), no phone access ( $N=2$ ), and enrolled DOT ( $N=6$ )]
  - ▶ **102 were eligible** to enroll in the sub-study
- Demographics ( $N=102$ )
  - ▶ 57% female
  - ▶ 18-27 years old ( $M= 22.81$  years,  $SD= 2.62$ )
  - ▶ 69% Black/African-American

# RESULTS: PARTICIPATION and RETENTION

$N = 102$  eligible;  
 $N = 6$  youth refused participation

## Participant retention



# RESULTS: DIFFERENCES IN PARTICIPATION

	Participants with at least one adherence score (N=69)	Eligible participants with NO adherence scores (N=33)	p
	Mean (SD); range	Mean (SD); range	
<b>Black/African-American</b>	<b>42 (61%)</b>	<b>28 (85%)</b>	<b>.015</b>
Not Black/African-American	27 (39%)	5 (15%)	
<b>Viral Load &gt;1000</b>	<b>15 (24%)</b>	<b>11 (48%)</b>	<b>.036</b>
Viral Load ≤ 1000	47 (76%)	12 (52%)	

Variables not reaching significance:

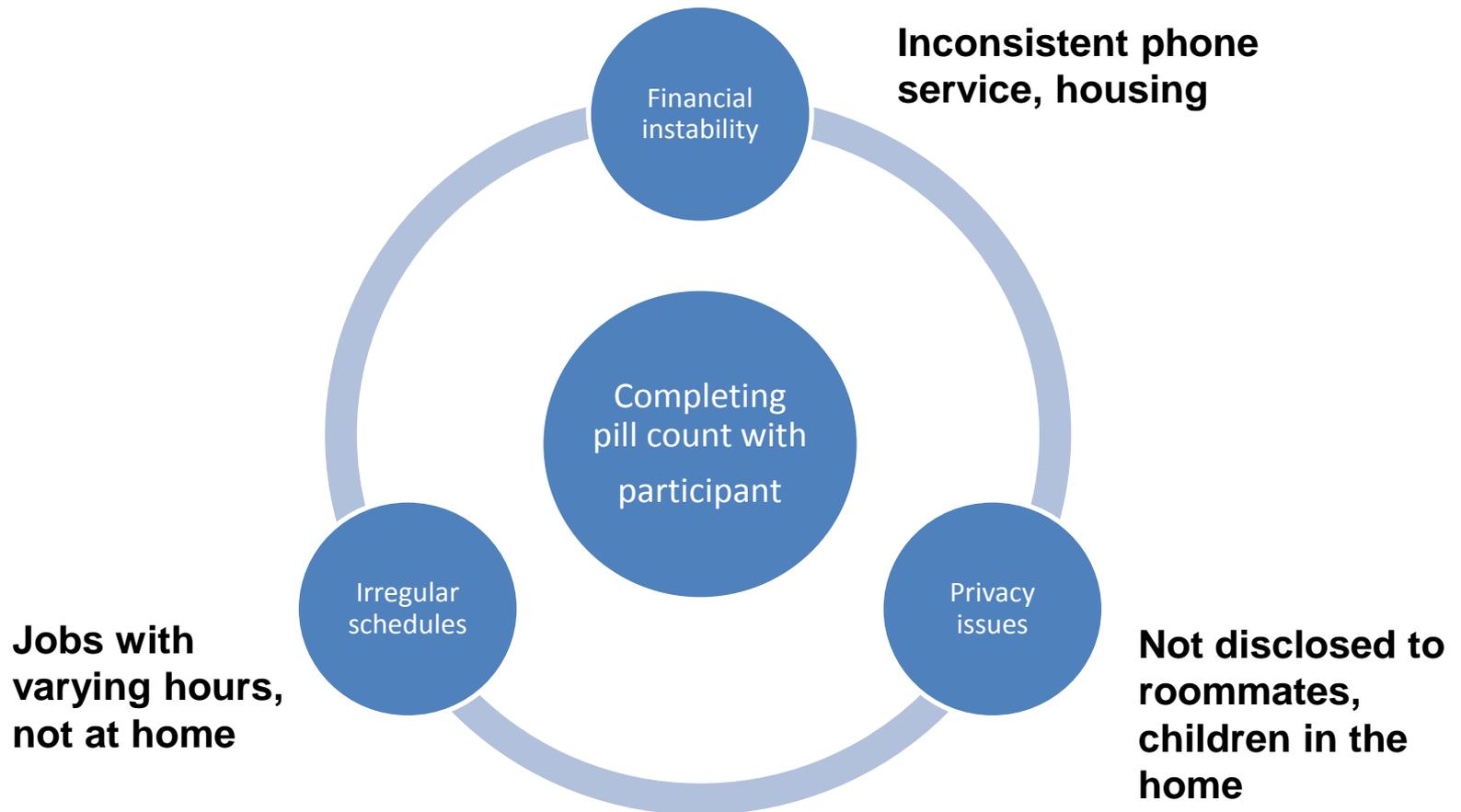
- ▶ Gender
- ▶ Household composition
- ▶ Level of education
- ▶ Psychiatric and substance use disorders

# RESULTS: IMPLEMENTATION

- Phone assessors called participants an average of 4 times before successfully completing a pill count call (Range= 1-14, *SD*= 2.53).
- The average number of days between each call was 33 (Range= 28-46, *SD*= 3.40).

# RESULTS: IMPLEMENTATION CHALLENGES

- Challenges to completing a call identified by phone assessors :



# RESULTS: ADHERENCE

- Average adherence score: 77% ( $SD= 23.80\%$ )

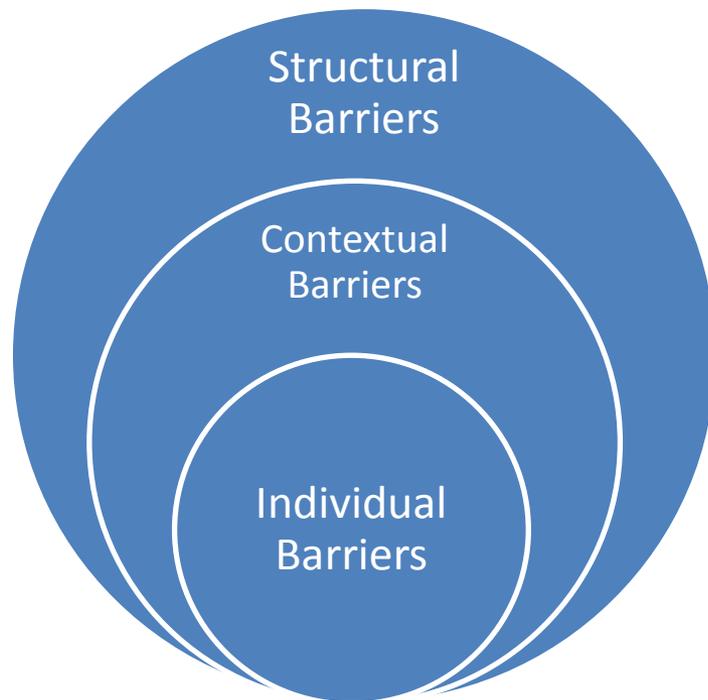
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	<b>N</b>	<b>Adherence score M (SD)</b>	<b>p</b>
<b>Participants with 3 adherence scores</b>	56	79 (19.5)	<b>.037</b>
<b>Participants with 1 or 2 adherence scores</b>	13	65 (23.3)	

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# RESULTS: MEDICATION TAKING BEHAVIORS

- Calls provided important information on medication taking behaviors.



Multi-level barriers to adherence identified during the calls:

- ▶ **Structural barriers:** no health insurance, sub-optimal pharmacy services
- ▶ **Contextual barriers:** major life events, limited support systems
- ▶ **Individual barriers:** medication hoarding and disorganization, mental health problems

# CONCLUSIONS

- Unannounced telephone pill counts can be a **feasible** method to measure adherence among PHIV+ AYAs.
  - ▶ 71% of enrolled participants contributed at least one adherence score
  - ▶ Only 58% were able to complete the entire protocol
- There were differences in participation by race and VL, but the majority of participant characteristics tested were not significant (i.e., gender, mental health).
- PHIV+ AYA adherence was **sub-optimal**.
- Average adherence of AYAs who contributed only 1-2 scores was significantly less than those who completed the entire protocol.
- A strength of the procedure is its ability to **identify challenges to adherence** in this population.

# FUTURE IMPLICATIONS

- **Research:** The protocol needs to be modified to better engage HIV+ AYAs who were significantly less likely to participate in the protocol than those in Kalichman's study.
  - ▶ Incorporating feedback from our participants
  - ▶ Provide study phones or phone minutes to participants
- **Clinical:** Unannounced telephone pill counts may be helpful in helping healthcare workers identify:
  - ▶ AYA patients who are struggling with adherence
    - ▶ Especially youth who do want to participate as non-participation might be a proxy for low adherence
  - ▶ The barriers contributing to poor adherence

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