Preliminary Validation of Unannounced Telephone Pill Count Adherence Data from Perinatally HIV-infected Adolescents and Young Adults

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There are increasing numbers of adolescents and young adults (AYA) living with HIV, particularly those with perinatal HIV infection (PHIV) outside the United States.

AYA are at risk for sub-optimal ART adherence.

Valid, low-cost ART adherence measurement tools are important for both assessment and treatment.

Several methods are available:

- Self-report
- Electronic monitoring
- Biomedical testing (e.g.: dried blood spot, hair samples)
- Unannounced telephone pill counts
Longitudinal cohort study of PHIV+ and perinatally HIV-exposed but uninfected adolescents

Originally recruited in 2003-2008 from four major medical centers in NYC when youth were 9-16 years old (N= 207 PHIV+)

Participants, now young adults, are enrolled in the third wave of the study: CASAH 3
CASAH 3

AIM: To identify individual, social, and contextual risk and protective factors influencing behavioral and health outcomes during the transition to adulthood.

- 3 annual psychosocial interviews, followed by:
  - Medical chart abstraction
  - Four monthly unannounced telephone pill counts
Unannounced telephone pill counts: a procedure to calculate adherence over the past month

- Telephone calls are completed ~30 days apart. Pills are counted at each call and pharmacy label information is collected.

- Calculate the proportion of prescribed doses taken (0-100%)

- Potential to assess adherence behaviors and barriers
This procedure has been:

✔ Validated with behaviorally-infected older adults
✔ Feasible with AYA
❓ Not yet validated with AYA
Data come from PHIV+ CASAH 3 participants:

- Adherence score (0-100%) obtained via unannounced telephone pill count
- Viral Load test conducted after the pill count, within 60 days

Analysis

- Generalized linear model with generalized estimating equation was used to compare adherence of those with VL ≤ 20 copies/ml vs. VL > 20 copies/ml
78 adherence scores collected from 41 participants could be linked to VL measured within 60 days after the pill count.

<table>
<thead>
<tr>
<th>Demographics</th>
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<tbody>
<tr>
<td>Mean age</td>
<td>22 years (18 – 26)</td>
</tr>
<tr>
<td>Gender</td>
<td>66% female</td>
</tr>
<tr>
<td>Race</td>
<td>56% African American / Black</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>59% Hispanic / Latino</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Mean (SD) or %</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>----------------</td>
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<tr>
<td>Unannounced Telephone Pill Count Adherence Score</td>
<td>75 (28)</td>
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<tr>
<td>Viral Load ≤ 20 copies/ml</td>
<td>55%</td>
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</tbody>
</table>

- Participants with VL ≤20 had significantly greater mean adherence
- 84% vs. 66% (p=.018)
These findings suggest that unannounced telephone pill counts are a valid measure of ART adherence and can predict virologic suppression among YA with PHIV.

Additional validation with a larger sample and other objective measures of adherence, such as tenofovir diphosphate levels, is needed.

This procedure could be tested with YA with PHIV in resource-limited settings outside of the U.S., where mobile phone use is high, but access to virologic testing is limited.

See Poster #408 for additional validation analyses using self-report and VL collected within 6 days of the pill count.
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