RISK BEHAVIOR IN YOUTH WITH PERINATALLY ACQUIRED HIV INFECTION: Co-occurrence Of Mental Health Problems, Sexual Behavior, Substance Use, And Non-adherence

George Siberry, Claude Mellins, Katherine Tassiopoulos, Kathleen Malee, Barbara Moscicki, Doyle Patton, Renee Smith, Ann Usitalo, Susannah Allison, Russell Van Dyke, and George Seage for the Pediatric HIV/AIDS Cohort Study

Pediatric HIV/AIDS Cohort Study (PHACS; U01 HD052104-01)

International AIDS Conference, Vienna, 2010
AGING HIV+ YOUTH: A BIO-PSYCHO-NEURO-SOCIAL PARADIGM PERSPECTIVE

- Born to high-risk women with substance use histories and prevalent heritable psychiatric disorders
- Experienced multiple environmental stressors
- Extended period without effective HIV treatment (pre-HAART) with developmental/neurocognitive consequences
- Aging into developmental stage of presentation of psychiatric disorder, sexual and drug behavior, social need to “fit in”, and non-adherence
- Potential for poor individual and public health outcomes
- Few studies of co-occurring behavioral outcomes over time
In a cohort of youth with perinatal HIV exposure, including both HIV+ and HIV-, the specific aims are

1) To examine the co-occurrence of behavioral health outcomes, including
   - mental health problems,
   - sexual behavior and substance use, and
   - among HIV+, ART adherence

2) To examine the role of perinatal HIV infection in influencing single and co-occurring behavioral health outcomes by comparing HIV-positive and HIV-negative youth
PARTICIPANTS

- Adolescent Master Protocol (AMP) of PHACS is a prospective cohort study recruiting perinatally HIV-exposed youth from 15 primary care sites in the US and Puerto Rico.

- Eligibility for AMP:
  1. born to HIV-infected mother
  2. Age 7 to 15 years, 11 months at study entry
  3. English- or Spanish-speaking, and
  4. For HIV+ youth, engaged in medical care with available antiretroviral therapy (ART) history

- For these analyses
  - Youth were at least 10 years old (as per protocol for sex interview)
  - Data retrieval 12/2009
ASSESSMENT

- Biomedical chart data (e.g., CDC class and current detectable HIV RNA viral load (> 400 copies/mL))
- Demographic questionnaire (e.g., child age, gender, race, ethnicity, caregiver type and HIV status, family income)
- Psychosocial interview on sexual and substance use behavior, mental health, and, for HIV+ youth only, non-adherence to antiretroviral treatment (ART)
SEXUAL BEHAVIOR AND SUBSTANCE USE

- Audio-computer assisted self-interview (ACASI) administered to youth

- **Sexual Risk Behavior**: the Adolescent Sexual Behavior Assessment (ASBA; Mellins et al., 2009)
  - Questions on kissing; touching; oral, anal, and vaginal sex; and unprotected penetrative sex
  - Primary outcome variable: ever had vaginal, anal or oral sex

- **Substance Use** (developed by PHACS protocol team)
  - Alcohol: current (past three months) and lifetime use (more than just a few sips at a given time) and
  - Substance use: current use of substances other than tobacco (e.g., marijuana, cocaine, heroin, etc.)
MENTAL HEALTH SYMPTOMS

- The Behavior Assessment System for Children-2
  \textit{(BASC-2; Reynolds & Kamphaus, 2004)}

- **Domains include**
  - Internalizing (e.g. depression and anxiety scales) and
  - Externalizing (e.g., hyperactivity and aggression scales) problems

- **Mental health impairment defined as**
  - At least 2 domain T-scores in the “At Risk” or “Clinically Significant” range
  - According to youth or caregiver report
NON-ADHERENCE (HIV+ YOUTH)

- Self-report questionnaire on child ART adherence completed by youth and caregiver

- Questions on
  - Knowledge of ART regimen
  - Any missed doses over the past seven days
  - Last time medications were missed
  - Estimate of level of usual adherence

- Non-adherence is defined as “any missed doses over the past seven days” according to child or caregiver
## STUDY PARTICIPANTS (N=254)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>PHIV+ (N=185)</th>
<th>PHIV- (N=69)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>91 (49%)</td>
<td>38 (55%)</td>
</tr>
<tr>
<td>≥ 13 years (range=9-16yrs) *</td>
<td>117 (63%)</td>
<td>22 (32%)</td>
</tr>
<tr>
<td>Black Race *</td>
<td>136 (74%)</td>
<td>45 (65%)</td>
</tr>
<tr>
<td>Caregiver *</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Birth Mother</td>
<td>72 (39%)</td>
<td>54 (78%)</td>
</tr>
<tr>
<td>Other Relative</td>
<td>58 (31%)</td>
<td>9 (13%)</td>
</tr>
<tr>
<td>Non-Relative</td>
<td>55 (30%)</td>
<td>6 (9%)</td>
</tr>
<tr>
<td>Caregiver Education &lt; HS</td>
<td>57 (31%)</td>
<td>23 (33%)</td>
</tr>
<tr>
<td>Income *</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; $20K</td>
<td>76 (41%)</td>
<td>47 (68%)</td>
</tr>
<tr>
<td>$20-40K</td>
<td>61 (33%)</td>
<td>10 (15%)</td>
</tr>
<tr>
<td>&gt; $40K</td>
<td>37 (20%)</td>
<td>12 (17%)</td>
</tr>
<tr>
<td>Unknown</td>
<td>11 (6%)</td>
<td>0</td>
</tr>
<tr>
<td>HIV RNA Viral Load &gt; 400</td>
<td>66 (36%)</td>
<td>--</td>
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</tbody>
</table>

* Statistically significant difference between PHIV+ and PHIV-
BEHAVIORAL HEALTH OUTCOMES (BHO)

- 46% of participants had at least one BHO
12% (n=31) had 2 or 3 BHOs

Among those with 2 or more BHOs:
ASSOCIATIONS WITH TWO OR MORE BHOs AMONG PHIV+ AND PHIV- YOUTH

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<th>PHIV+ (n=185)</th>
<th>PHIV- (n=69)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>NS</td>
<td>9.87 (1.45, 67.1)</td>
</tr>
<tr>
<td>Age &gt;13 Years*</td>
<td>NS</td>
<td>23.4 (3.47, 157)</td>
</tr>
<tr>
<td>Caregiver is Birth Mother</td>
<td>2.86 (1.04, 7.88)</td>
<td>NS</td>
</tr>
<tr>
<td>Detectable Viral load</td>
<td>3.77 (1.37, 10.4)</td>
<td>N/A</td>
</tr>
</tbody>
</table>

* 13-16 years
Not including lack of ART adherence.
Odds ratios for one vs no behavioral problems not shown.
Race, ethnicity, household income, and CDC Class C diagnosis were not associated with the outcome.

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HIV-POSITIVE YOUTH
BHOs INCLUDING ADHERENCE

**Most Frequent Combinations, for those with 2+ BHOs**

<table>
<thead>
<tr>
<th>Combination</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adherence + mental health</td>
<td>34%</td>
</tr>
<tr>
<td>Adherence + substance use + sex</td>
<td>17%</td>
</tr>
<tr>
<td>Sex + substance use</td>
<td>9%</td>
</tr>
<tr>
<td>Sex + adherence</td>
<td>9%</td>
</tr>
</tbody>
</table>

- Youth living with biological parent and with lower income are at higher risk for ≥2 versus 0 behavioral health problems
- Having a detectable viral load was also associated with having ≥2 BHOs and the only variable that remained significant in multivariate analyses
SUMMARY AND CONCLUSION

- High prevalence of at least one Behavioral Health Problem, most frequently a mental health problem.

- Age of onset of sex and substance use was similar to or lower than many previous US studies with other populations, with high rates of unprotected sex among the sexually active (nearly 2/3 of HIV+ sexually active).

- HIV+ and HIV- youth were similar in their prevalence and types of co-occurring problems.

- Factors associated with having two or more behavioral health problems (e.g., age, gender, caregiver type) differed between HIV-positive and HIV-negative youth.

- Among the HIV+ youth, detectable VL was associated with co-occurring behavioral health problems.
DISCUSSION AND CONCLUSIONS

- **Limitations**: sampling bias, cross-sectional data, self-report measures, missing data, and group differences.

- **Practical implications**: Our results suggest a significant need for service programs for both HIV-infected and HIV-affected youth.
  - HIV- children of HIV+ mothers are often forgotten group, with less access to service programs
  - The high rates of non-adherence in HIV+ youth in the context of detectable LV and multiple behavioral health problems, including unprotected sex, indicates a significant public health need for integrated prevention and intervention services targeting co-morbid problems
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- National Institute on Drug Abuse
- National Institute of Neurological Disorders and Stroke
- National Institute on Deafness and Other Communication Disorders
- National Institute on Alcohol Abuse and Alcoholism

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  - Jacobi Medical Center
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  - St. Jude Children's Research Hospital
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  - SUNY Downstate Medical Center
  - SUNY Stony Brook
  - Tulane University Health Sciences Center
  - University of Alabama, Birmingham
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  - University of Illinois, Chicago
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  - University of Miami
  - University of Southern California
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