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Mental Health and Special Education Issues in a Cohort of HIV-infected Children: Results from a multisite survey

Richard Rutstein¹, Joshua Josephs², Aditya Guar³, Patricia Flynn³, Stephen Spector, Kelly Gebo²
for the HIV Research Network

¹Children's Hospital of Philadelphia, Philadelphia PA, ²Johns Hopkins University School of Medicine, Baltimore, MD, ³St. Jude's Children's Hospital, Memphis, TN, ⁴University of California San Diego, LaJolla, CA

Kelly A. Gebo, MD, MPH
1830 E. Monument Street
Room 435
Baltimore, MD 21287
Phone: 410-502-2325
Email: kgebo@jhmi.edu

BACKGROUND

With recent advances in treatment, children and adolescents with perinatally acquired HIV infection are now surviving well into late adolescence and adulthood. Data is needed to inform policy regarding the educational and mental health needs of this population.

METHODS

During 2003, data was collected via caregiver interview for 136 pediatric HIV infected school age children at 4 US HIV Research Network sites. Children <5 years were excluded. The four pediatric sites are located in the East (2), South (1), and West (1). The median sample size was 36. Any visit to a psychiatric provider not for drug and alcohol abuse was defined as a mental health visit

Data Collection:
Face-to-face interviews with sampled patients were conducted between December 2003 and December 2004 by professional interviewers trained and supervised by Battelle Corporation (Columbus, Ohio, USA). Participants were reimbursed \$30 for the approximately one-hour interview.
Measures: Current CD4 count and current HIV-1 RNA was also extracted from medical records using the first value in calendar year 2004. We determined sociodemographic and clinical factors associated with self-reported:

1. Use of Depression or ADD/ADHD Meds
 2. Use of Special Education
 3. Use of Outpatient psychiatric care through logistic regression. These variables were then placed in separate multivariate models:
 1. Use of Depression or ADD/ADHD Meds
 2. Use of Special Education
 3. Use of Outpatient psychiatric care.
- Variables were removed from the models until all remaining variables were significant at p=.10

HIV Research Network Investigators

- Participating Sites**
- Alameda County Medical Center, Oakland, California (Silver Sinerov, D.O.)
 - Children's Hospital of Philadelphia, Philadelphia, Pennsylvania (Richard Rutstein, M.D.)
 - Community Health Network, Rochester, New York (Roberto Corales, D.O.)
 - Community Medical Alliance, Boston, Massachusetts (James Hellinger, M.D.)
 - Drexel University, Philadelphia, Pennsylvania (Peter Sklar, M.D.)
 - Henry Ford Hospital Detroit, Michigan (John Jovanovich, M.D., Norman Markowitz, M.D.)
 - Johns Hopkins University, Baltimore, Maryland (Kelly Gebo, M.D., Richard Moore, M.D.)
 - Montefiore Medical Group, Bronx, New York (Robert Bell, M.D., Lawrence Hanau, M.D.)
 - Nemechek Health Renewal, Kansas City, Missouri (Patrick Nemecek, M.D.)
 - Oregon Health and Science University, Portland, Oregon (P. Todd Korhous, M.D.)
 - Parkland Health and Hospital System, Dallas, Texas (Philip Keiser, M.D.)
 - St. Jude's Children's Hospital (Aditya Guar, M.D.)
 - St. Luke's Roosevelt Hospital Center, New York, New York (Victoria Sharp, M.D.)
 - Tampa General Health Care, Tampa, Florida (Jeffrey Nadler, M.D., Charan Sambomwiti, M.D.)
 - University of California, San Diego, La Jolla, California (Stephen Spector, M.D.)
 - University of California, San Diego, California (W. Christopher Mathews, M.D.)
 - Wayne State University, Detroit, Michigan (Lawrence Crane MD., Jonathan Cohn, M.D.)

Table 1. Demographics

Variable	Children N=136
Age	
1-4	16 (10)
5-10	63 (40)
11-18	73 (50)
Parents Race	
White	21 (14)
Black	97 (64)
Hispanic	31 (20)
Other/missing	3 (2)
Sex	
Male	62 (46)
Female	74 (54)
HIV Risk Factor	
Blood	3 (2)
Heterosexual	2 (1)
Vertical Transmission	128 (94)
Unknown/Other	3 (2)
Insurance	
Medicaid	108 (79)
Private	21 (15)
Public/None	7 (5)
Parents Education	
<High School	38 (28)
High School or JC Grad	87 (64)
College Grad	11 (8)
Living Situation	
Homeless/Alone	41 (31)
Parents/Significant Other	42 (31)
Foster or Group Home	53 (38)
Primary Care Visits within 6 months	
≤3	48 (35)
4 or 5	33 (24)
6 or 7	39 (29)
>7	15 (11)
HAART	
No	42 (32)
Yes	91 (68)
Outpatient Psychiatry	
No	104 (76)
Yes	32 (24)
Use of ADD or Depression Medications	
No	118 (87)
Yes	18 (13)*
Special Education	
No	72 (60)
Yes	49 (40)

* Of 18 Patients using depression or ADD/ADHD meds 6 (33%), also used Efavirenz

Table 2: Bivariate Analysis of factors associated outpatient psychiatric care

Variable	Any OP Psychiatric Visit OR (95%CI)**	Use of Special Education OR (95% CI)	Use of ADD or Depression Meds OR (95% CI)
Age			
5-10	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)
11-18	1.24 (0.55-2.77)	0.59-0.28-1.26)	0.67 (0.44-1.85)
Parents Race			
White	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)
Black	1.64 (0.20-2.09)	1.32 (0.42-4.11)	1.05 (0.26-4.31)
Hispanic	1.68 (0.35-8.08)	0.12 (0.02-0.63)*	0.39 (0.03-5.97)
Other	3.41 (0.17-67.08)	0.47 (0.03-7.70)	N/A
Sex			
Female	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)
Male	2.41 (1.07-5.44)*	1.35 (0.65-2.83)	2.62 (0.90-7.57)*
Insurance			
Medicaid	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)
Private	2.13 (0.77-5.87)	1.33 (0.49-3.03)	1.55 (0.43-5.58)
Public/None	N/A	0.33 (0.04-3.69)	N/A
Parental Education			
< High School	1.0 (Ref)	1.0 (Ref)	1.00 (Ref)
High school or JC Grad	1.33 (0.52-3.97)	2.62 (1.00-6.85)	2.17 (0.44-10.6)
College Grad	3.66 (1.84-15.87)*	4.91 (1.09-22.0)*	5.68 (0.74-43.5)*
Living Situation			
Parents/Significant Other	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)
Homeless/Alone	2.67 (0.71-7.91)*	0.87 (0.32-2.41)	1.63 (0.37-7.20)
Foster or Group Home	2.33 (0.89-7.77)	0.64 (0.24-1.68)	2.24 (0.59-8.52)
Employment			
Full time work or student	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)
Not working to care for child	0.99 (0.25-2.77)	0.77 (0.30-2.01)	1.98 (0.53-7.35)
Disabled or Retired	0.82 (0.25-2.67)	1.79 (0.58-5.47)	1.93 (0.47-7.94)
Other	1.47 (0.39-5.58)	0.58 (0.13-2.49)	0.99 (0.18-5.50)
Primary Care Visits within six months			
≤3	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)
4 or 5	1.48 (0.43-3.28)	1.31 (0.49-3.53)	2.20 (0.53-8.26)
6 or 7	0.49 (0.13-1.81)	1.14 (0.36-3.71)	1.92 (0.36-7.88)
>7	2.00 (0.56-7.09)	6.84 (1.51-30.92)*	5.86 (1.23-27.8)*
HAART			
No	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)
Yes	1.50 (0.61-3.69)	0.59 (0.26-1.31)	0.73 (0.24-2.21)
Child Knows HIV Status			
No	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)
Yes	1.63 (0.72-3.75)	0.60 (0.28-1.30)	1.57 (0.54-4.57)

IMPLICATIONS

Advances in the treatment of pediatric HIV have led to significant decreases in morbidity and mortality. With these advances, our data reveals that, as this group ages, they are at significant risk for school failure and MH issues, including the need for antidepressant and ADHD therapies. The use of MH and SE services is much higher for this population than for the general pediatric/adolescent population.

Despite their improved outcome in terms of immunologic factors and virologic suppression, this is a population in need of careful monitoring, as well as an intensive multidisciplinary team approach to help them access needed services. Adequate funding and availability of needed educational support services and Mental Health services must be assured.

Table 3: Multivariate Analysis of Factors Associated with Receipt of Outpatient Psychiatric Services

Variable	Adjusted Odds Ratio (95% CI)**
Sex	
Female	1.0 (Ref)
Male	2.76 (1.17-6.47)*
Education	
< High School	1.0 (Ref)
High school or JC Grad	1.36 (0.46-4.04)
College Grad	4.27 (0.89-20.5)*
Living Situation	
Parents/SO	1.0 (Ref)
Homeless/Alone	3.00 (0.85-10.5)*
Foster or Group Home	3.00 (0.99-9.15)*

Table 5: Multivariate Analysis of Factors Associated with Use of Depression or ADD/ADHD Meds

Variable	Adjusted Odds Ratio (95% CI)**
Sex	
Female	1.0 (Ref)
Male	1.39 (0.40-4.81)
Primary Care Visits	
≤3	1.0 (Ref)
4 or 5	2.11 (0.45-9.89)
6 or 7	2.76 (0.46-16.7)
>7	4.51 (0.77-26.1)*
Outpatient Psych	
No	1.0 (Ref)
Yes	6.07 (1.88-19.6)*

Table 4. Multivariate Analysis of Factors Associated with use of Special Education

Variable	Adjusted Odds Ratio (95% CI)
Sex	
Female	1.0 (Ref)
Male	0.91 (0.37-2.25)
Race	
White	1.0 (Ref)
Black	2.51 (0.65-9.70)
Hispanic	0.15 (0.02-1.07)*
Other	0.25 (0.02- 3.94)
Education	
< High School	1.0 (Ref)
High school or JC Grad	1.64 (0.53-5.07)
College Grad	4.36 (0.79-23.9)*
Primary Care Visits within six months	
≤3	1.0 (Ref)
4 or 5	1.36 (0.44-3.98)
6 or 7	1.66 (0.47-5.71)
>7	16.4 (2.46-110.0)*

CONCLUSIONS

In this aging HIV-infected pediatric population, responding to an in-depth survey, there was heavy utilization of outpatient medical care (40% had 6 or more visits/6months).

Of the group surveyed, 24% had at least one MH visit 13% were on antidepressant and/or ADHD medications 40% of patients required SE services.

Compared to nationally reported values, where 12% of all school children receive SE services and 6-9% receive MH services, this cohort of HIV-infected children and adolescents had a very high rate of MH and SE service usage. HIV pediatric providers should screen patients for SE and MH needs.

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