Women who acquired HIV perinatally or early in childhood

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Disclosures

• Gilead scientific advisory board, site investigator under clinical research contract managed through JHU

• Merck scientific advisory board, consultant, site investigator under clinical research contract managed through JHU
Objectives

- Epidemiology of population of women with perinatal or early childhood acquired HIV

- Highlight unique aspects of women with early infection (developmental, neurocognitive, biologic, psychosocial and societal factors)

- Discuss clinical, research, and societal needs to optimize outcomes
The First Pediatric Cases

(November 1982)
The First Pediatric Cases

Natural history

- Symptoms develop over months to years
- 25% rapidly progress to AIDS (1st year of life)
- 75% experience slow progression
- 25% mortality by age five
- Annual rate of disease progression (6-8%)

“although they make up only 1% of AIDS patients, they have unique clinical, social, and public health problems that require special attention.” Rogers

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Fig 6. Survival time after diagnosis of AIDS in children less than 13 years of age in whom AIDS was diagnosed as of Dec 31, 1981, and reported to the Centers for Disease Control.
Advances → Improved Outcomes

- Diagnostic tools
  - Safe blood supply
  - Earlier diagnostics
- OI prophylaxis and treatment
  - Immunizations
- Prevention of maternal to child transmission
- Identification, management, and prevention of co-morbidities
- Antiretroviral therapy


Year of classification

Classifications, No

Aged <13 years

Aged ≥13 years
Age Distribution of Persons Living with Diagnosed Perinatally Acquired HIV Infection, Year-end 2017—United States and 6 Dependent Areas

N = 11,924
Adolescents and Young Adults Aged 13–24 Years Living with Diagnosed HIV Infection by Sex and Transmission Category, Year-end 2017—United States and 6 Dependent Areas

Note. Data have been statistically adjusted to account for missing transmission category. “Other” transmission category not displayed as it comprises 1% or less of cases.

“Survival guide” for women who acquired HIV early

- Find out your diagnosis
- Deal with it
- Take pills every single day forever
- See your provider every 1-6 months
- Blood draws
- Make sure your insurance is active
- Do all of the other life stuff too…….
Continuum of care for youth with HIV infection

- Infected
- Diagnosed
- Engaged in Care
- Prescribed ART
- Suppressed Viral Load

PHIV 10-19* (N=1,032)

Stay suppressed?


*CIPHER PLoS One 2018
“What are we missing?”

- Life
- Adherence is hard & multifactorial
- Side effects
- Long term toxicity
- One size does not fit all
- Forever is a long time
- Things change
- Fatigue
- Disclosure
- Stigma
- Mental health
- “I don’t want to be here?”
- “This is not my fault!”
# Medical challenges

<table>
<thead>
<tr>
<th>Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ Feel normal</td>
</tr>
<tr>
<td>➢ Advanced disease/immunosuppression</td>
</tr>
<tr>
<td>➢ Co-morbidities</td>
</tr>
<tr>
<td>➢ Mental health (anxiety, depression, PTSD), substance use</td>
</tr>
<tr>
<td>➢ Neurocognitive delay and dysfunction</td>
</tr>
<tr>
<td>➢ Delayed puberty and short stature</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>➢ Treatment experienced</td>
</tr>
<tr>
<td>➢ More complicated ART</td>
</tr>
<tr>
<td>➢ One pill too many!</td>
</tr>
<tr>
<td>➢ Treatment fatigue</td>
</tr>
<tr>
<td>➢ Drug-resistance</td>
</tr>
</tbody>
</table>
Psychosocial challenges

- Stigma (HIV, sexuality, other)
- Disclosure (HIV, sexuality, other)
- Limited support systems
- Poor adjustment to illness/status, self efficacy, outcome expectancy
- Denial/guilt
- Limited health literacy
- Logistic barriers: insurance, children, transportation, housing
- Poverty
- Unemployment/ underemployment
- Attempting to be “normal”
# Life Course Perspective for Women with Early Acquired HIV

<table>
<thead>
<tr>
<th>Decade</th>
<th>Life Events</th>
<th>Self-management</th>
<th>Disclosure</th>
<th>Stigma</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd Decade 10-19 years</td>
<td>School, Trade School/College, Employment, Parent/guardian loss</td>
<td>Parental/caregiver involvement wanes</td>
<td>Disclosure (to self), Disclosure to others</td>
<td>Internal and external stigma</td>
</tr>
<tr>
<td>3rd Decade 20-29 years</td>
<td>Trade School/College, Employment, Partnerships, Children, Parent/guardian loss</td>
<td>Self-management</td>
<td>Disclosure of status to partners, children, friends, others</td>
<td></td>
</tr>
<tr>
<td>4th Decade 30-39 years</td>
<td>Employment, Partnerships, Children, Parent/guardian loss</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5th Decade 40-49 years</td>
<td>Employment, Partnerships, Parent/guardian loss</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26th Decade ≥50 years</td>
<td>Employment/Retirement, Partnerships</td>
<td>Self-management</td>
<td>May need assistance</td>
<td></td>
</tr>
</tbody>
</table>

## Environmental/Psychosocial Factors

- **2nd Decade (10-19 years)**: School, Trade School/College, Employment, Parent/guardian loss
- **3rd Decade (20-29 years)**: Trade School/College, Employment, Partnerships, Children, Parent/guardian loss
- **4th Decade (30-39 years)**: Employment, Partnerships, Children, Parent/guardian loss
- **5th Decade (40-49 years)**: Employment, Partnerships, Parent/guardian loss
- **26th Decade (≥50 years)**: Employment/Retirement, Partnerships

## Treatment and Treatment-related Factors

- **Antiretroviral Treatment**
  - Simple regimen
  - Increased responsibility of ART

- **Adherence**
  - May wane with decreased parental/caregiver involvement, stigma and nondisclosure to peers
  - Adherence variable
  - Increased risk of resistance

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Intersectionality

Physical Abilities/Qualities
Age
Sexual Orientation/Identity
Race
Ethnicity
Gender

Work Background
Communication Style/Skills
Appearance
Political Ideology
Marital Status
Functional Specialty
Military Experience
Classification
Job
Religious Beliefs
Socio-Economic Status
Geographic Location
Parental Status
Thinking Styles
Education
Creed

National Center for Education Statistics; Bureau of Labor Statistics, Center for Disease Control & Prevention
Women with Early Acquired HIV

Submitted on Oct 6, 2020

Women with Early Acquired HIV | The Well Project (www.thewellproject.org/hiv-information/women-early-acquired-HIV)
How will women with early HIV infection be impacted?

**Neurocognitive**
- Deficits in working memory, executive function, and processing speed.
- Likely defects in visual memory and spatial ability.

**Fertility and Pregnancy**
- No difference in fertility desire or fertility compared to general population.
- Antepartum depression rates higher among PHIV (22%) vs. NPHIV 11% vs. HIV- (1%)
- Lower CD4 at start of pregnancy; more likely to electively terminate; no differences in pregnancy outcomes.

**Mental Health**
- 25% - 60% of PHIV in PHACS had mental health problems (depression, anxiety, ADHD)
- High rates of internalized stigma; associated with depression.

How will we know about emerging morbidity?

- Case reports
- Longitudinal cohort studies?
- Current cohorts*
  - PHACS (AMP Up)
  - CIPHER
  - IeDEA
  - NA-ACCORD
  - UK cohorts
  - WIHS
- Modeling studies
- CEPAC

*not all inclusive; each has limitations
Lost in the mix..........................

<table>
<thead>
<tr>
<th>Demographics</th>
<th>NADC</th>
<th>MI</th>
<th>ESLD</th>
<th>ESRD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No diagnosis (n=60095)</td>
<td>Diagnosis (n=1405)</td>
<td>No diagnosis (n=29168)</td>
<td>Diagnosis (n=347)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;40 years</td>
<td>29,429 (49%)</td>
<td>317 (23%)</td>
<td>13,749 (47%)</td>
<td>63 (18%)</td>
</tr>
<tr>
<td>40-49 years</td>
<td>20,584 (34%)</td>
<td>550 (39%)</td>
<td>10,237 (35%)</td>
<td>144 (41%)</td>
</tr>
<tr>
<td>50-59 years</td>
<td>8,239 (14%)</td>
<td>390 (28%)</td>
<td>4,220 (14%)</td>
<td>106 (31%)</td>
</tr>
<tr>
<td>≥60</td>
<td>1,843 (3%)</td>
<td>148 (11%)</td>
<td>982 (3%)</td>
<td>34 (10%)</td>
</tr>
<tr>
<td>Male</td>
<td>46,330 (77%)</td>
<td>1,093 (78%)</td>
<td>23,475 (80%)</td>
<td>298 (86%)</td>
</tr>
<tr>
<td>Race and ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>25,075 (42%)</td>
<td>692 (49%)</td>
<td>13,429 (46%)</td>
<td>193 (56%)</td>
</tr>
<tr>
<td>Black</td>
<td>21,658 (36%)</td>
<td>534 (38%)</td>
<td>10,831 (37%)</td>
<td>123 (35%)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>7,683 (13%)</td>
<td>111 (8%)</td>
<td>3,106 (11%)</td>
<td>20 (6%)</td>
</tr>
<tr>
<td>Other</td>
<td>3,033 (5%)</td>
<td>44 (3%)</td>
<td>1,308 (4%)</td>
<td>10 (3%)</td>
</tr>
<tr>
<td>Unknown or missing</td>
<td>2,646 (4%)</td>
<td>24 (2%)</td>
<td>494 (2%)</td>
<td>1 (0%)</td>
</tr>
<tr>
<td>HIV transmission risk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSM</td>
<td>31,370 (52%)</td>
<td>742 (53%)</td>
<td>16,103 (55%)</td>
<td>193 (56%)</td>
</tr>
<tr>
<td>IDU</td>
<td>6,885 (11%)</td>
<td>204 (15%)</td>
<td>2,971 (10%)</td>
<td>44 (13%)</td>
</tr>
<tr>
<td>Heterosexual contact</td>
<td>15,397 (25%)</td>
<td>343 (24%)</td>
<td>7,559 (26%)</td>
<td>84 (24%)</td>
</tr>
<tr>
<td>Other, unknown, or missing</td>
<td>6,443 (11%)</td>
<td>116 (8%)</td>
<td>2,535 (9%)</td>
<td>26 (7%)</td>
</tr>
</tbody>
</table>

Althoff KN. Lancet HIV 2019
Factors impacting site selection: region, availability/accessibility, insurance, patient/provider comfort, parental clinic attendance
What are we adult providers seeing?

- Variable transition (ages, rates of “success”)
- Variability in readiness for transition
  - Struggling with multiple components (e.g., appointments, insurance, life)
- Youth poorly engaged in care before have significant risk of falling out of care following transition.
  - YHIV doing well on peds side tend to continue to do well on the adult side
  - Parental involvement helpful, particularly when co-morbidities exist
- Amazing resiliency
- Depression, hopelessness developing (“I have survived..... so now what?”)
- Limited capacity to maintain prior level of support and engagement
- Continued connection with peds side essential
- Interventions that increase awareness of the unique needs of youth essential to building capacity among adult providers and programs.
- Flexibility important
- Where will they go next? (Peds provider caring for 30+ y/o pts)

YHIV provider Observations (unpublished); Adult DHHS GL (Revised Adolescent Section 2021); Griffith et al JAIDS 2019
Where should we be moving?

- Multimodal strategies & approaches for treatment, remission
  - Biologics
    - Fewer pills
    - Smaller pill size
    - Fewer drug-drug interactions
    - Fewer side effects
    - Fewer dietary requirements
    - More formulations
    - Better taste
    - Higher barrier to resistance
    - More options for treatment-experienced individuals
  - ART next gen (e.g., long-acting, different delivery modes)
  - Different strategies
    - (e.g., monoclonal ab, activated T cells, vaccines)
  - Cure strategies (e.g., latency reversing agents)

HIV-1 virological remission lasting more than 12 years after interruption of early antiretroviral therapy in a perinatally infected teenager enrolled in the French ANRS EFF-CO10 paediatric cohort: a case report

Pierre Frange, Albert Faye, Veronique Aventaud Fenot, Éliana Bellaton, Diane Descamps, Mathieu Angot, Annie David, Sophie Callat-Zucman, Gilles Peytavin, Catherine Diotlil, Jerome Le Chenadec, Josiane Warszanski, Christine Rouzioux, Axer Saez-Cion, ANRS EFF-CO10 Pediatric Cohort and the ANRS EP47 VISCONTI study group

Affiliations + expand
PMID: 27962993 DOI: 10.1016/S2525-3018(15)00232-5
Free article
What else do we need to be doing?

- Predicting and addressing complications
  - Longitudinal cohorts, biomarkers, surrogates
  - Examine sex differences
  - Optimize mental health, reducing stigma
  - Predict, identify and prevent comorbidities

- Behavioral and community interventions

- Implementation science

- Optimizing care models
  - Alternative “venues” for care delivery;
  - virtual spaces; real-world

- Personalized medicine?

- Consider women with early acquired HIV
  - Include women early and often

“\[\text{"My mission in life is not merely to survive, but to thrive; and to do so with some passion, some compassion, some humor, and some style.\"

\text{— Maya Angelou}\]"
Conclusion

- Women with early acquired HIV are surviving into adulthood
- Many thriving, but significant challenges exist
- Awareness of potential impact of early acquired HIV is key
- Need to specifically consider these women in research, clinical care, advocacy and best practices
Acknowledgements

The Youth!!

ACE
John G Bartlett Subspecialty Team
IPC/PAHAP
WICY team
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-Students, residents, fellows, post-docs
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Pediatric & Adult Infectious Diseases Divisions
Family & support network

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National Institute of Allergy and Infectious Diseases

Eunice Kennedy Shriver

NICHD
National Institute of Child Health & Human Development

Center for AIDS Research

HRSA
Health Resources and Services Administration
Maternal and Child Health Bureau