Elimination of Mother-to-Child Transmission of HIV: National, State, and City Perspectives

September 24, 2014
Webinar Agenda

- Elimination of Mother-to-Child Transmission: Within Reach
  - Chad J. Abresch, CityMatCH
- Texas Perinatal HIV Prevention
  - Jenny R. McFarlane, Texas Department of State Health Services
- Elimination of Mother-to-Child Transmission of HIV: The Philadelphia Perspective
  - Kathleen A. Brady, Philadelphia Department of Public Health
- Interactive Q&A Session
Within Reach: Why we need to believe in (and push for) elimination now more than ever.
Strongly Believe?

Strongly Disbelieve?
Strongly Believe.
A Framework for Elimination of Perinatal Transmission of HIV in the United States

Steven Nesheim, Allan Taylor, Margaret A. Lampe, Peter H. Kilmarx, Lauren Fitz Harris, Suzanne Whitmore, Judy Griffith, Melissa Thomas-Proctor, Kevin Fenton and Jonathan Mermin

*Pediatrics* 2012;130;738; originally published online September 3, 2012;
DOI: 10.1542/peds.2012-0194

The online version of this article, along with updated information and services, is located on the World Wide Web at:

http://pediatrics.aappublications.org/content/130/4/738.full.html
Within Reach
Why we need to believe in (and push for) elimination now more than ever...
Not There Yet

Diminished Infrastructure

A Battle Worth Winning
Not There Yet
Elimination Goal Criteria

<1 infection per 100,000 live births

<1% MTCT among exposed infants
Elimination Goal Criteria

Fewer than 41

Fewer than 87
<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Est No.</td>
<td>Rate</td>
<td>Est No.</td>
</tr>
<tr>
<td>Black/AA</td>
<td>176</td>
<td>28.2</td>
<td>199</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>48</td>
<td>4.6</td>
<td>47</td>
</tr>
<tr>
<td>White</td>
<td>45</td>
<td>2.0</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>268</td>
<td>6.8</td>
<td>261</td>
</tr>
<tr>
<td>Goal</td>
<td></td>
<td>&lt; 41</td>
<td></td>
</tr>
</tbody>
</table>

Why do we need to believe in (and push for) EMTCT now more than ever...

- Because we’re not there yet
- Because the virus is prevalent in women of color
- Because inequities are rampant
Diminished Infrastructure
The Ryan White Program

CDC Division of HIV/AIDS Prevention

Vision: A future FREE of HIV

Mission: To promote health and quality of life by preventing HIV infection and reducing HIV-related illness and death in the United States
CDC Division of HIV/AIDS Prevention

Vision: A future FREE of HIV

Mission: To promote health and quality of life by preventing HIV infection and reducing HIV-related illness and death in the United States
Early pHIV Prevention History

• **1995** – USPHS Recommends HIV Counseling and Voluntary Testing for all Pregnant Women

• **1995-96** – CDC Begins Conducting Surveillance for Perinatal HIV in 7 States to Monitor Effect of USPHS Recommendations and Other Prevention Indicators

• **1999** – IOM Publishes Reducing the Odds: Preventing Perinatal Transmission of HIV in the United States

• **1999** – Congress Appropriates $10 Million per Year for Perinatal Prevention; CDC Stands up 24 EPS Sites, 16 Prevention Programs, and Partnerships with 6 National Organizations
Non-Stop Prevention Impact

• Publish MMWRs & Dear Colleague Letters
• Create Model Protocols
• Issue New Clinical Recommendations
• Change Prenatal HIV Testing Policy in Dozens of States
• Change Prenatal HIV Testing Practice among Countless Providers
• Set a Visionary Goal of Elimination
• Create a Framework to Get to Elimination
• Adapt a Sentinel Review Methodology for Identifying and Filling Prevention and System Gaps
• And MUCH, MUCH More...
KEEP MOVING
DON'T STOP
100 x $270,000
Every Year = $27,000,000
928 Kids Agree...
Yes to Perinatal Prevention
PS12-1201

• Promote routine, early HIV screening for all pregnant women
• Assure that HIV-positive pregnant women receive the necessary interventions and treatment for the prevention of perinatal transmission
• Conduct sentinel event case review and community action (where appropriate and based on local need and the availability of resources)
No Money = No Problem
<table>
<thead>
<tr>
<th>Jurisdictions</th>
<th>CY2012 Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>$0</td>
</tr>
<tr>
<td>5</td>
<td>Up to $100,000</td>
</tr>
<tr>
<td>2</td>
<td>$100,001 - $500,000</td>
</tr>
<tr>
<td>1</td>
<td>$500,001 - $1,000,000</td>
</tr>
<tr>
<td>3</td>
<td>Over $1,000,000</td>
</tr>
<tr>
<td>18</td>
<td>No Response</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$5,405,810</strong></td>
</tr>
</tbody>
</table>
A Battle Worth Winning
Strongly Believe?
Strongly Disbelieve?
Determination?

EMTCT: A Battle Worth Winning
Strongly Determined!
Texas Perinatal HIV Prevention

Jenny R. McFarlane
Manager, HIV Testing and Prevention Interventions
HIV/STD/TB/Viral Hepatitis Unit
Texas Department of State Health Services
Perinatal HIV Transmission in Texas by Birth Year, 1990-2012

Birth Year

No. Of Cases
Infants Born to HIV Positive Women in Texas, 1999-2012

Source: EPSS/eHARS, 09/2014
## Texas Statistics

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of HIV + pregnant women</th>
<th>Number of Births</th>
<th>Number of confirmed infected infants</th>
<th>% of exposed receiving 3 arms of therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>369</td>
<td>380</td>
<td>15</td>
<td>79%</td>
</tr>
<tr>
<td>2007</td>
<td>393</td>
<td>401</td>
<td>15</td>
<td>80%</td>
</tr>
<tr>
<td>2008</td>
<td>421</td>
<td>425</td>
<td>11</td>
<td>81%</td>
</tr>
<tr>
<td>2009</td>
<td>422</td>
<td>430</td>
<td>10</td>
<td>85%</td>
</tr>
<tr>
<td>2010</td>
<td>426</td>
<td>431</td>
<td>9</td>
<td>82%</td>
</tr>
<tr>
<td>2011</td>
<td>404</td>
<td>412</td>
<td>9</td>
<td>79%</td>
</tr>
<tr>
<td>2012</td>
<td>372</td>
<td>378</td>
<td>6</td>
<td>74%</td>
</tr>
<tr>
<td>2013*</td>
<td>251</td>
<td>253</td>
<td>4</td>
<td>78%</td>
</tr>
</tbody>
</table>

*2013 – data incomplete
1999-2011 Perinatal HIV Jurisdiction

- Focused training and guidance on Perinatal HIV Prevention
  - State law for HIV/Syphilis and HBV testing
  - Expedited HIV testing in Labor and Delivery

- Specialized Perinatal HIV Case management

- Community Mobilization
  - Texas Consortium for Perinatal HIV Prevention
  - Houston Perinatal HIV Task Force
Texas Consortium for Perinatal HIV Prevention

• Reduce or prevent the number of perinatal HIV transmissions in Texas through the efforts of Perinatal HIV Champions.
• Clinicians – Physicians, Nurses, Social Workers, Case Managers.
• Administrators – DSHS, Surveillance, Labor and Delivery Hospitals, Ryan White Providers, Public Health Follow Up, CDC, HRSA, City MatCh.
• Membership Organizations – Nurses Associations, Texas Medical, Texas ACOG, National ACOG.
Consortium Outcomes

• Guidelines for Care for HIV-Infected Pregnant Women in Texas
• Education for Labor and Delivery best practices
• Texas TRAIN
  o Perinatal HIV and Syphilis Online Training with CEs.
Testing Pregnant Women

- Health and Safety Code 81.090
  - Test HIV, HBV, Syphilis at 1st prenatal care visit
  - Test HIV during third trimester
  - At Labor and Delivery if NO 3rd trimester test, test for HIV, result returned within 6 hours.
  - If at birth of infant no 3rd trimester test OR L&D test of mother, test infant, result returned within 6 hours.
- Test HBV and Syphilis at L&D.
HIV, Syphilis and HBV Testing and Pregnancy: State Requirements for Texas Clinicians

Texas law (Chapter 81.090 of the Texas Health and Safety Code) requires any health care provider allowed to care for a pregnant woman to test her for human immunodeficiency virus (HIV), syphilis, and hepatitis B virus (HBV) unless she objects. These tests must take place during the pregnant woman’s first prenatal visit. A second HIV test must be conducted during the third trimester, and an expedited HIV test must be conducted upon admission for delivery if no record of the third trimester HIV test is available. The law also provides for expedited HIV testing of infants at delivery if a mother’s results are not available. These tests apply to each pregnancy.

<table>
<thead>
<tr>
<th>Time of Test</th>
<th>Perinatal HIV/STD Tests Required by Texas Law</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST Prenatal visit</td>
<td>HIV, HBV and syphilis test required</td>
</tr>
<tr>
<td>THIRD Trimester</td>
<td>HIV test required</td>
</tr>
<tr>
<td>Delivery</td>
<td>Expedited HIV test required if no record of third trimester result</td>
</tr>
<tr>
<td>Newborn Tests</td>
<td>Expedited HIV test required if no record of third trimester result</td>
</tr>
</tbody>
</table>

*Expedited tests must be obtained and result obtained within 2 hours. For newborns, test must be done “within 24 hours after birth.”

Stage of Pregnancy | Recommended Perinatal Tests and Precautions |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST Trimester</td>
<td>Chlamydia and gonorrhea screening, especially for populations at risk*</td>
</tr>
<tr>
<td>Third Trimester</td>
<td>Syphilis test recommended between 20-23 weeks for high-risk populations* and where syphilis prevalence is high</td>
</tr>
<tr>
<td>Delivery</td>
<td>Any woman delivering a stillborn infant should be tested for syphilis</td>
</tr>
<tr>
<td></td>
<td>Testing for HIV for women not previously tested at or high risk for HIV*</td>
</tr>
<tr>
<td>Newborn Vaccinations and Precautions</td>
<td>First of three HBV vaccinations is given</td>
</tr>
</tbody>
</table>

Why test pregnant women?
Testing and treatment for HIV, HBV and syphilis prevents infected infants. Without knowledge of HIV status, a mother with HIV has an approximately 25 percent chance of transmitting HIV to her unborn child. If HIV-positive pregnant women are tested and receive appropriate care and treatment during pregnancy, labor, and delivery (and the newborn is treated as well), the transmission rate can be decreased to 2 percent or less.

Therapy includes antiretroviral medicine as well as cesarean delivery for women with high HIV viral loads (>1,000 copies/mL). Even when medicine is not started until labor and delivery, transmission rates are reduced to 10 percent. Testing and treatment also decreases rates of syphilis and HBV infection. Perinatal syphilis screening allowed Texas clinicians to identify 79 cases of congenital syphilis in 2012, enabling them to provide treatment and follow-up. For infants born to women with infectious HBV, 70-95 percent will not be infected if they receive HBV vaccine and treatment within 12 hours of delivery.
10 Questions About Pregnancy and HIV

10 Preguntas Sobre el Embarazo y el VIH

This brochure was developed to comply with Texas Health and Safety Code, Chapter 81, Section 81.090, “Serologic Testing During Pregnancy,” which requires Texas health care providers to distribute printed educational materials about HIV/AIDS and syphilis to all pregnant women at the first prenatal visit or at delivery.

See also the DSHS Prenatal Hepatitis B brochure
Four Sisters, Four Stories

Four Sisters, Four Stories, For You: Sex, Pregnancy, HIV and More

Cuatro mujeres, Cuatro historias: El sexo, el embarazo, el VIH y más
CDC FOA 12-1201

Comprehensive Prevention for Positives

- Assure that HIV-positive pregnant women receive the necessary interventions and treatment for the prevention of perinatal transmission
  - http://aidsinfo.nih.gov/contentfiles/PerinatalGL.pdf
- Conduct sentinel event case review and community action to address local systems issues that lead to missed perinatal HIV prevention opportunities by utilizing the Fetal and Infant Mortality Review (FIMR)-HIV Prevention Methodology.
- Attachment III: Examples of Perinatal HIV Prevention Activities.
Stakeholder Education

Public Health Detailing, Promotion, Marketing of best practices to clinicians, administrators and stakeholders

- Texas Law - HIV, Syphilis and HBV Testing of Pregnant Women
- Test Technologies and Routine HIV Screening.
- New HIV Diagnostic Algorithm
- Texas Medication Program
- Ryan White and State Services Providers
- Disease Intervention and Public Health Follow Up
- Perinatal Hotline
Addressing Missed Opportunities

**Provider Education**
- Partnership with Surveillance to ensure understanding of reporting rules and perinatal surveillance
- The Perinatal HIV Prevention Online and Routine HIV Testing Courses available through TRAIN Texas at [https://tx.train.org](https://tx.train.org)

**FIMR HIV**
- Piloting project in Houston area.
- Collaboration between DSHS, Harris Health Systems, Baylor College of Medicine, CDC and City MatCH
- Review Perinatal HIV and Congenital Syphilis.
FIMR HIV Prevention Methodology

Goal: To improve perinatal HIV prevention systems

• Case Identification
  o HIV exposed infant <24 months at time of review
  o Review of existing HIV surveillance data to identify cases

• Data gathering
  o Data abstraction
  o Maternal Interview

• Case Review Team
  o Review de-identified information for each case, identify missed opportunities, make recommendations to CAT

• Community Action Team
  o Initiate changes based on recommendations from CRT

www.fimrhiv.org
Acknowledgements

- Kacey Russell, MPH – DSHS Surveillance
- Judy Levison, MD, MPH – Baylor College of Medicine
- Margaret Lampe, RN, MPH – CDC
- Lauren Fitzharris, MPH - CDC
- City MatCH
Elimination of Mother-to-Child Transmission of HIV:
The Philadelphia Perspective

Kathleen A. Brady, MD
Medical Director/Medical Epidemiologist
Philadelphia Department of Public Health
AIDS Activities Coordinating Office
September 24, 2014
Philadelphia Perspective

- Data driven policy decisions
  - Perinatal HIV Exposure reporting since 2005
  - FIMR-HIV implemented in 2010
- Results of 3 analyses using perinatal exposure reporting data from 2005 to 2013 (supplemented with eHARS data)
  - Caesarian Section Practices Among HIV-Infected Women in Philadelphia, 2005-2013
  - Time of HIV Diagnosis and Prenatal Care Impact Outcomes in Pregnant Women with HIV
  - The HIV Care Continuum for Postpartum Women in Philadelphia, 2005 to 2011: Barriers and Facilitators to Re-linkage to Care, Retention in Care, and Viral Suppression
Philadelphia Perinatal HIV Exposures, 2005-2013

Perinatal HIV Exposures

- 2005: 117
- 2006: 124
- 2007: 111
- 2008: 118
- 2009: 95
- 2010: 100
- 2011: 90
- 2012: 79
- 2013: 74
C-section Practices

• ACOG and the DHHS Panel on Treatment of HIV-Infected Pregnant Women and Prevention of Perinatal Transmission Guidelines
  o Elective caesarean at 38 weeks’ gestation recommended for HIV-infected women with HIV RNA levels >1000 copies/ml
  o Compliance with these guidelines is unknown

• Objectives:
  o Determine the mode of delivery among HIV-infected women in Philadelphia
  o Determine maternal factors associated with performance of an elective c-section among HIV-infected women with a VL > 1000 copies/ml
Independent Variables

**Maternal/Behavioral Characteristics**
- Year of Delivery
- Age at Delivery
- Race/Ethnicity
- Marital Status
- Insurance Coverage
- HIV Transmission Factor
- Illicit Drug Use

**Clinical Characteristics**
- Previous Caesarian Delivery
- Prenatal ART Prescription
- ART Initiated in 1st/2nd Trimester
- Gestational Age
- Quality of Prenatal Care (Kessner Index)
## Study Population

<table>
<thead>
<tr>
<th>Select Characteristics</th>
<th>N   (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at Time of Delivery: 25 – 34yrs</td>
<td>423 (51.33)</td>
</tr>
<tr>
<td>Black, non-Hispanic</td>
<td>651 (79.00)</td>
</tr>
<tr>
<td>Sexually Acquired HIV</td>
<td>699 (84.83)</td>
</tr>
<tr>
<td>Adequate Prenatal Care</td>
<td>322 (39.08)</td>
</tr>
<tr>
<td>ART Prescription during Pregnancy</td>
<td>703 (85.32)</td>
</tr>
<tr>
<td>ART Initiated 1\textsuperscript{st}/2\textsuperscript{nd} Trimester</td>
<td>533 (64.68)</td>
</tr>
<tr>
<td>Infant HIV Infection</td>
<td>16 (1.94)</td>
</tr>
</tbody>
</table>

*Total of 824 deliveries among 648 HIV-infected women*
Mode of Delivery by HIV Viral Load (VL)

A. Mode of Delivery among Women with a VL ≤1000 (n=503)
- Vaginal: 57%
- Elective C-section: 30%
- Emergent C-section: 13%

B. Mode of Delivery among Women with a VL >1000 (n=222)
- Vaginal: 32%
- Elective C-section: 48%
- Emergent C-section: 20%
Factors Associated with an Elective C-section among Women with a HIV VL >1000 copies/ml

<table>
<thead>
<tr>
<th>Significant Variables</th>
<th>AOR (95% CL)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 35 Years of Age</td>
<td>0.33 (0.13 – 0.88)</td>
<td>0.03</td>
</tr>
<tr>
<td>Black</td>
<td>0.20 (0.1 - 0.7)</td>
<td>0.01</td>
</tr>
<tr>
<td>Previous C-section</td>
<td>32.00 (8.2 – 128.9)</td>
<td>0.00</td>
</tr>
</tbody>
</table>
Conclusions

• Only half of the HIV-infected women with a VL > 1000 copies/ml prior to delivery received an elective C-section
• Disparities in receiving an elective C-section exist
• Black women have significantly lower rates than White women (80% less likely)
• A substantial proportion of births (20.1%) resulted in preterm deliveries or occurred via emergent C-section (20% of women with a VL > 1000 copies/ml had an emergent C-section);
  • Possible that some women either delivered before their scheduled C-section or that they developed obstetrical complications leading to an emergent C-section
  • Measures to reduce the risk of premature labor, such as abstinence from drugs and strong engagement in care, should be emphasized particularly among women with elevated VL.
Time of HIV Diagnosis and Prenatal Care Impact Outcomes in Pregnant Women with HIV

- Utilizing the same cohort as the C-section paper
  - Determine ART receipt and HIV suppression rates (close to delivery) among HIV-infected pregnant women.
    - ART Receipt - Receipt of ART at any point during pregnancy.
    - HIV viral suppression - HIV VL ≤ 400 copies/ml closest to delivery (measured as far out as 1 month postpartum).
  - Evaluate how timing of HIV diagnosis and quality of prenatal care impact these outcomes.
### Study Variables

#### Sociodemographic
- Age at delivery
- Race/ethnicity
- Insurance status
- Substance abuse
- Delivery year

#### Clinical
- Adequacy of Prenatal Care, measured by Kessner Index
  - Adequate
  - Intermediate
  - Inadequate
- Timing of HIV diagnosis
  - Before pregnancy
  - During pregnancy
Receipt of ART and Viral Suppression by Timing of HIV Diagnosis

- % Receipt of ART
- % VL ≤ 400 copies/ml

**HIV dx Before Pregnancy**
- 89
- 56

**HIV dx During Pregnancy**
- 71
- 42

P < 0.001
Receipt of ART and Viral Suppression by Adequacy of Prenatal Care

Adequate Intermediate Inadequate

% Receipt of ART % VL ≤ 400 copies/ml

P < 0.001
# Factors Associated with the Outcomes

<table>
<thead>
<tr>
<th></th>
<th>Receipt of ART AOR (95% CI)</th>
<th>Viral Suppression AOR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (ref: 16-24)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-34</td>
<td>0.5 (0.3-0.9)</td>
<td>1.0 (0.7-1.5)</td>
</tr>
<tr>
<td>≥ 35</td>
<td>0.4 (0.2-0.9)</td>
<td>0.9 (0.6-1.4)</td>
</tr>
<tr>
<td><strong>Race (ref: white, non-Hispanic)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black, non-Hispanic</td>
<td>0.5 (0.3-1.1)</td>
<td>0.9 (0.5-1.4)</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>0.3 (0.1-0.9)</td>
<td>0.8 (0.4-1.7)</td>
</tr>
<tr>
<td><strong>Illicit Drug Use (ref: no)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>0.7 (0.4-1.2)</td>
<td>0.7 (0.5-1.1)</td>
</tr>
<tr>
<td><strong>Insurance (ref: )</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Factors Associated with the Outcomes

<table>
<thead>
<tr>
<th></th>
<th>Receipt of ART AOR (95% CI)</th>
<th>Viral Suppression AOR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adequacy of Prenatal Care</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>(ref: adequate)</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intermediate</td>
<td>0.6 (0.3-1.2)</td>
<td>0.7 (0.5-1.0)</td>
</tr>
<tr>
<td>Inadequate</td>
<td>0.06 (0.03-0.11)</td>
<td>0.3 (0.2-0.5)</td>
</tr>
<tr>
<td><strong>Timing of HIV Diagnosis</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>(ref: before pregnancy)</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>During Pregnancy</td>
<td>0.4 (0.2-0.6)</td>
<td>0.7 (0.5-1.0)</td>
</tr>
<tr>
<td>Year of Delivery</td>
<td>1.3 (1.1-1.4)</td>
<td>1.3 (1.2-1.4)</td>
</tr>
</tbody>
</table>
Conclusions

• 25% of women were dx with HIV during pregnancy.
• Only 39% engaged adequately in prenatal care and half achieved suppression at delivery.
• HIV dx during pregnancy and inadequate prenatal care were strongly associated with detectable virus at delivery.
• Targeted interventions for early HIV diagnosis and improve engagement in prenatal care are needed:
  o Full implementation of opt-out testing
  o Use of Social media
  o Peer navigators during pregnancy and postpartum
  o Case management involvement
• Integration of the HIV provider, obstetrician, and pediatrician in the plan of care.
HIV Care and HIV+ Women Postpartum

- Evidence that women fall out of care
  (Onen, 2008; Vitalis, 2013; Watson-Jones, 2012)

- Evidence that women virologically rebound
  (Onen, 2008; Mocroft, 2003)

- Consequences:
  - Increased mortality and morbidity
  - Increased likelihood of drug resistance

- Problem: The HIV Care Continuum for postpartum women has never been defined.
Methods

- Retrospective cohort study, n=733, live births 2005-2011
- Linkage of two data sources managed by AACO (EPS and eHARS)

Outcome Measures

- **Re-linkage to care within 90 days** (≥1 CD4 or HIV-RNA test within 90 days postpartum)
- **Retention in care for one year postpartum** (≥1 CD4 or HIV-RNA test in each 6 month interval of the 12 months postpartum, 60 days b/t labs)
- **Viral suppression at one year postpartum** (HIV-RNA <200 copies/mL for lab closest to the end of 12 month postpartum)
- **Retention in care for two years postpartum** (≥1 CD4 or HIV-RNA test in each 6 month interval of the 24 months postpartum, 60 days b/t labs)
- **Viral suppression at two years postpartum** (HIV-RNA <200 copies/mL for lab closest to the end of 24 month postpartum)
Predictors of Interest: Potential Barriers and Facilitators

• Demographic/Patient
  o Maternal age at delivery (included as a covariate)
  o Mother’s race/ethnicity (included as a covariate)
  o Marital status at delivery
  o HIV transmission risk category
  o Reported substance use during pregnancy (alcohol and illegal drugs)
  o Positive toxicology screening results during pregnancy

• Clinical
  o Number of previous live births
  o Previous pregnancy with HIV diagnosis
  o Most advanced HIV serostatus during pregnancy

• Care Engagement During Pregnancy
  o Adequacy of prenatal care (Kessner Index- 1) trimester of entry, 2) number of prenatal visits, and 3) gestational age of infant at birth)
  o Timing of HIV Diagnosis
  o Antiretroviral therapy (ART) during pregnancy
  o Undetectable viral load at last viral load before delivery
HIV Care Continuum by year for HIV-infected women who gave birth to a live infant up to two years postpartum (n=733), 2005-2011- Philadelphia

<table>
<thead>
<tr>
<th>Year</th>
<th>Re-linkage to care</th>
<th>1 yr retention</th>
<th>1 yr viral suppression</th>
<th>2 yr retention</th>
<th>2 yr viral suppression</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>18%</td>
<td>12%</td>
<td>8%</td>
<td>3%</td>
<td>20%</td>
</tr>
<tr>
<td>2006</td>
<td>41%</td>
<td>48%</td>
<td>18%</td>
<td>19%</td>
<td>24%</td>
</tr>
<tr>
<td>2007</td>
<td>50%</td>
<td>44%</td>
<td>26%</td>
<td>24%</td>
<td>30%</td>
</tr>
<tr>
<td>2008</td>
<td>50%</td>
<td>53%</td>
<td>40%</td>
<td>30%</td>
<td>37%</td>
</tr>
<tr>
<td>2009</td>
<td>53%</td>
<td>52%</td>
<td>34%</td>
<td>34%</td>
<td>33%</td>
</tr>
<tr>
<td>2010</td>
<td>47%</td>
<td>58%</td>
<td>41%</td>
<td>31%</td>
<td>44%</td>
</tr>
<tr>
<td>2011</td>
<td>52%</td>
<td>65%</td>
<td>55%</td>
<td>38%</td>
<td>49%</td>
</tr>
</tbody>
</table>

Source: Enhanced Perinatal Surveillance System (EPS) and HIV/AIDS Reporting System (eHARS), 5/14/14 AIDS Activities Coordinating Office, Philadelphia Department of Public Health
HIV Care Continuum for HIV-infected women who gave birth to a live infant postpartum 2005-2011 (n=733)

<table>
<thead>
<tr>
<th></th>
<th>ART for CD4 &lt;500 (n=276)</th>
<th>Total Study Population (n=733)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Re-linkage to care</td>
<td>51%</td>
<td>44%</td>
</tr>
<tr>
<td>1 yr retention</td>
<td>58%</td>
<td>46%</td>
</tr>
<tr>
<td>1 yr viral suppression</td>
<td>43%</td>
<td>30%</td>
</tr>
</tbody>
</table>

Source: Enhanced Perinatal Surveillance System (EPS) and HIV/AIDS Reporting System (eHARS), 5/14/14 AIDS Activities Coordinating Office, Philadelphia Department of Public Health
<table>
<thead>
<tr>
<th>Maternal age</th>
<th>Maternal race/ethnicity</th>
<th>Marital status</th>
<th>HIV transmission risk</th>
<th>Alcohol use during pregnancy</th>
<th>Illegal drug use during pregnancy</th>
<th>Positive toxicology screening</th>
<th>Number of previous live births</th>
<th>Previous pregnancy with HIV diagnosis</th>
<th>Most advanced HIV serostatus during pregnancy</th>
<th>Adequacy of prenatal care</th>
<th>Timing of HIV diagnosis</th>
<th>ART during pregnancy</th>
<th>Undetectable VL at last VL before delivery</th>
<th>Care Continuum</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;= 35 yr</td>
<td>Other race/ethnicity</td>
<td></td>
<td>IUD</td>
<td></td>
<td></td>
<td></td>
<td>1-2 previous births</td>
<td>Previous Pregnancy</td>
<td>Previous pregnancy</td>
<td>Intermediate</td>
<td>&lt;2 years before delivery</td>
<td>Yes- ART</td>
<td>Undetectable</td>
<td>Relinked to care</td>
</tr>
<tr>
<td></td>
<td>African American</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Inadequate and intermediate</td>
<td>During pregnancy</td>
<td></td>
<td>Undetectable</td>
<td>Relinked to care</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Virally suppressed at 1 yr</td>
<td></td>
<td></td>
<td>Virally suppressed at 1 yr</td>
<td>Relinked to care</td>
</tr>
</tbody>
</table>

**Viral Suppression**

- (1 year) Retention in Care: Yes- ART
- (2 years) Retention in Care: Relinked to care
- (2 years) Viral Suppression: Virally suppressed at 1 yr
Conclusions

• Postpartum HIV-infected women have low rates of re-linkage to care, retention in care, and viral suppression.

• Re-linkage to HIV-care within 90 days postpartum was one of the most important predictors of retention in care and viral suppression postpartum.

• Interventions that improve care engagement during pregnancy and re-linkage to HIV care within three months postpartum have the potential to improve clinical outcomes.
Questions

• Kathleen A. Brady, MD
• E-mail: Kathleen.A.Brady@phila.gov
• Phone: 215-685-4778
Questions

- Verbal Questions
  - Press *7 to unmute
  - Press *6 to re-mute
  - Please identify yourself

- Written Questions
  - Submit using chat

- If you have questions regarding this webinar, please contact Erin McElderry (emcelderry@NASTAD.org)