Prevention of Mother to Child Transmission of HIV
Prof. Kay Libbus, University of Missouri-Columbia
A Webber Training Teleclass

Prevention of Mother to Child Transmission of HIV
Policy, Program and Practice Issues

M. Kay Libbus, DrPH, RN, Professor
Sinclair School of Nursing
University of Missouri-Columbia, USA

World Health Organization
PMTCT Strategic Vision 2010-2015

Preventing mother to child transmission of HIV to reach UNGASS
and Millennium Development Goals

UM Millennium Development Goals

• End Poverty and Hunger
• Universal Education
• Gender Equality
• Child Health
• Maternal Health
• Combat HIV/AIDS
• Environmental Sustainability
• Global Partnership

Hosted by Paul Webber paul@webbertraining.com
www.webbertraining.com
Prevention of Mother to Child Transmission of HIV  
Prof. Kay Libbus, University of Missouri-Columbia  
A Webber Training Teleclass

Objectives

• Restate basic information about the HIV virus.
• Differentiate between horizontal and vertical transmission of HIV.
• Evaluate factors that increase the probability of mother to child transmission of HIV.
• Characterize the importance of equal human rights for women who are HIV positive.
• Conceptualize the World Health Organization four element process in eliminating mother PMTCT.
• Appreciate the importance of integrating HIV services, reproductive and sexual health services and antenatal services in preventing PMTCT.
• Explain the specific interventions that may be used to reduce PMTCT when women are HIV positive.

HIV Virus  
Human Immunodeficiency Virus  
HIV infection proceeds full-blown AIDS

Hosted by Paul Webber  paul@webbertraining.com  
www.webbertraining.com
## Two Main forms of HIV

<table>
<thead>
<tr>
<th>HIV-1</th>
<th>HIV-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Causes disease by compromising the body’s immune defenses</td>
<td>Causes disease by compromising the body’s immune defenses</td>
</tr>
<tr>
<td>Discovered at the Institute Pasteur in 1983</td>
<td>Identified among Patients in Cameroon in 1985</td>
</tr>
<tr>
<td>Responsible for most progression to full-blown AIDS</td>
<td>More similar to Simian Immunodeficiency Virus (SIV)</td>
</tr>
<tr>
<td></td>
<td>Less virulent than HIV-1.</td>
</tr>
</tbody>
</table>

## HIV - a Special type of Retrovirus containing RNA

- Replicate backwards – hence the name
- There are other RNA viruses (measles and flu) but these are not retroviruses.
- Three families of retroviruses
  - Oncoviruses (cause cancer)
  - Lentiviruses (slow viruses – HIV is one)
  - Spumaviruses (AKA foamy viruses - much less known about this one.

## HIV Transmission

- Historically considered a disease in MSM and IDUs
- Horizontal transmission – person to person by way of
  - Sexual contact
  - Transfusion of blood and blood elements
  - IDU
  - Any activity in which body fluids are transferred

## Vertical Transmission

Transmission from mother to fetus or infant during pregnancy... (20%)

..during the birth processes (70-80%)
Prevention of Mother to Child Transmission of HIV  
Prof. Kay Libbus, University of Missouri-Columbia  
A Webber Training Teleclass

...and during breastfeeding (10-20%)

Perinatal Transmission of HIV is a Recurring and Significant Source of New HIV Infection

United States

- 8500 Perinatal transmissions (of whom 60% had died by 2005).
- Gradual Decrease through the course of the epidemic, primary due to timely ID of Maternal HIV and timely interventions to prevent perinatal HIV.
- U.S. Opt-out testing for all pregnant women

Hosted by Paul Webber  paul@webbertraining.com  
www.webbertraining.com
Prevention of Mother to Child Transmission of HIV
Prof. Kay Libbus, University of Missouri-Columbia
A Webber Training Teleclass

Worldwide
- A minimum of 15 million women infected
- More than 500,000 HIV infected infants born annually
- Without intervention 35% of children born to HIV infected women will be infected
  - 14-32% in non-breastfeeding populations
  - 25-48% in breastfeeding populations

Human and Civil Rights and HIV
- Health Care providers may advise HIV+ women to avoid pregnancy and childbirth
- However,…
- HIV positive women have the right to have children and family
- Decide on whether and when to conceive
- Decide on the number and spacing of children
- Access to quality reproductive health services

Children are vital to many people
- “to have a complete life”
- “To be just like other women”
- “To please the family”
- “To have someone to inherit”
- “there is an inherent need to have a child”
- “children are a blessing from God”
- “To have someone to care for me when I am old”

WHO Four-element strategy for perinatal HIV prevention

Children are vital to many people

Hosted by Paul Webber  paul@webbertraining.com
www.webbertraining.com
Element 1: Prevention of HIV in women, especially young women

- Reduce or eliminate unprotected intercourse
- Association between violence (war, rape) and HIV in women.
- Many women have lack control over all sexual activities and their own fertility

Element 1

- Early, consistent, and recurring health and sex education for girls and boys
- Public HIV prevention marketing with rejection of common myths (e.g., virgin cure)
- Prompt reporting of sexual assault with post-assault prophylaxis post rape of coerced sex (AZT)

Element 2: Prevention of unintended pregnancy in HIV-infected women

- Availability of sexual health services
- Combination of sexual health and reproductive services with HIV services to reduce stigmatization and improve availability (one stop shopping)
- HIV test as many women as possible as early as possible after becoming sexually active

Element 2

- Much of the lack of linkages between services related to political resistance and funding streams
- Global HIV/AIDS program funds and family planning funds are separate
- Although 15-50% pregnancies in HIV+ women unintended, HIV specified funds cannot be used for family planning
- Caught up in ideological and political debate

Element 3: Prevention of transmission from HIV + women to their offspring

- Planned pregnancy when possible
- High CD4 counts and low viral loads
- Avoid pregnancy or consider termination when AIDS-defining conditions are present
- Lower transmission when C-section compared to vaginal delivery
- Rapid delivery after rupture of membranes
- Check for and treat STDs prenatally

Element 3 (continued)

- For HIV+ women who are planning pregnancy, avoid potentially teratogenic anti-retroviral drugs (ARV) such as Efavirenz and Amprenavir that can cause birth-defects
- Assisted Reproduction – eg., Artificial Insemination (AF)
- In Vitro Fertilization (IVF)
- Use washed sperm if partners are sero-concordant (see Thornton et al, 2004)
Element 3 (continued)

• Drug Therapy (ARV/ART)
  – First drug used Zidovidine (AZT or ZDV) -36=38 weeks gestation
  – Stops HIV from infecting uninfected cells in the body but do not help cells that are already infected
  – Concerns about use of one drug only due to potential drug resistance

Dual or Combination Drug Therapy

Many therapeutic regimens in use
One Regimen: Daily doses of AZT beginning at 36 weeks, single dose Niverapine (NVP) during labor; infant receives NVP no later than 72 hours post-birth and 2 days of AZT
Long-term NVP use associated with maternal hepatic dysfunction
See Dao et al. (2007)

Element 3: Infant Feeding

• Robust association between breastfeeding and risk of infant HIV-infection
• Use of substitute feeds or banked breast milk with feeding bottle depending on availability and cultural acceptability (stigma)
• Exclusive breastfeeding or bottle feeding for first 4-6 months
• 6 month limit on breastfeeding followed by indigenous weaning liquids and foods.

Element 4: Support for Mother and Family

• Post-partum support from family, community, and health care system
• Women must continue ARVs post-partum
• Possibility of sterilization if woman (and partner) satisfied with family size
• Reduction of pressure on women to bear a son
• Infants and children monitored months and years following birth.

WHO guidelines for PMTCT drug regimens in resource-limited settings from http://www.avert.org/motherchild.htm
Prevention of Mother to Child Transmission of HIV
Prof. Kay Libbus, University of Missouri-Columbia
A Webber Training Teleclass

The Future

- Depoliticize the issues
- Improve linkages between sexual health, reproductive, and HIV services
- Work to reduce stigma
- Improve and protect women’s status
- Make medication widely available

Bibliography