Integrating Antiretroviral Therapy into MNCH: Antenatal and Postnatal Care in the Option B+ Era

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Objectives

- Review epidemiology of HIV among women of reproductive age and children
- Describe current World Health Organization recommendations for management of HIV during pregnancy and breastfeeding (PMTCT Option B+)
- Discuss challenges and opportunities in the implementation of Option B+
## Global summary of the AIDS epidemic | 2014

### Number of people living with HIV in 2014

<table>
<thead>
<tr>
<th>Category</th>
<th>Total</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
<td>34.3</td>
<td>[31.8 million – 38.5 million]</td>
</tr>
<tr>
<td>Women</td>
<td>17.4</td>
<td>[16.1 million – 20.0 million]</td>
</tr>
<tr>
<td>Children (&lt;15 years)</td>
<td>2.6</td>
<td>[2.4 million – 2.8 million]</td>
</tr>
</tbody>
</table>

### People newly infected with HIV in 2014

<table>
<thead>
<tr>
<th>Category</th>
<th>Total</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
<td>1.8</td>
<td>[1.7 million – 2.0 million]</td>
</tr>
<tr>
<td>Children (&lt;15 years)</td>
<td>220 000</td>
<td>[190 000 – 260 000]</td>
</tr>
</tbody>
</table>

### AIDS deaths in 2014

<table>
<thead>
<tr>
<th>Category</th>
<th>Total</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
<td>1.0</td>
<td>[0.8 million – 1.3 million]</td>
</tr>
<tr>
<td>Children (&lt;15 years)</td>
<td>150 000</td>
<td>[140 000 – 170 000]</td>
</tr>
</tbody>
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WHO – HIV department | July 21, 2015

World Health Organization | UNAIDS | Unicef
Pregnant women living with HIV are at two to 10 times greater risk of death than uninfected pregnant women.

While maternal deaths have decreased overall in past decade, countries with high HIV burdens have had slower declines compared to countries less affected by HIV pandemic.

- South Africa—an upper middle-income country with an antenatal HIV prevalence of 29.5%—experienced a decrease of only 0.4% in its maternal mortality ratio (MMR) between 1990 and 2013, despite a global MMR decrease of 45% in the same timeframe.
Fig. 3.2. Number of pregnant women living with HIV in low- and middle-income countries and the number and percentage of those women receiving ARV drugs for PMTCT of HIV, 2005–2013

- Total number of pregnant women living with HIV (all needing PMTCT ARVs)
- Number of pregnant women living with HIV receiving ARV medicines for PMTCT (Option A, B and B+)
- Percentage coverage

Ranges

Sources: Global AIDS Response Progress Reporting (WHO/UNICEF/UNAIDS) and validation process for the number of pregnant women living with HIV receiving ARV drugs for PMTCT, and UNAIDS 2013 estimates for the number of pregnant women living with HIV.
Reduction in New Pediatric Infections 2005-2013

- 26% reduction in 4 years
- 43% reduction in 4 years

Source: UNAIDS 2013 Estimates
**Evolution of WHO Prevention of Mother-to-Child Transmission (PMTCT) ARV Guidelines Over Time**

<table>
<thead>
<tr>
<th>Year</th>
<th>PMTCT</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>4 weeks AZT; AZT+ 3TC; or SD NVP</td>
<td>No rec</td>
</tr>
<tr>
<td>2004</td>
<td>AZT from 28 wks + sdNVP</td>
<td>ART if CD4 &lt;200</td>
</tr>
<tr>
<td>2006</td>
<td>AZT from 28 wks + sdNVP + AZT/3TC 7d</td>
<td>ART if CD4 &lt;200</td>
</tr>
<tr>
<td>2010</td>
<td>Option A: AZT/sdNVP + infant NVP if BF&lt;br&gt;Option B: ART preg/BF</td>
<td>ART if CD4 &lt;350</td>
</tr>
<tr>
<td>2013</td>
<td>Option B+: Life-long ART</td>
<td>ART if CD4 &lt;500</td>
</tr>
</tbody>
</table>

Modified slide from Elaine Abrams
<table>
<thead>
<tr>
<th>Option</th>
<th>Women with CD4 count above 350 cells/mm³</th>
<th>Women with CD4 count below 350 cells/mm³</th>
<th>HIV-exposed infant receives</th>
</tr>
</thead>
</table>
| Option A | During pregnancy: AZT starting as early as 14 weeks of pregnancy  
At delivery: single-dose NVP and first dose of AZT/3TC  
After delivery: daily AZT/3TC through 7 days postpartum | Triple ARVs started as soon as diagnosed and continued for life | Daily prophylaxis (NVP) from birth until 1 week after all breastfeeding has finished; or, if not breastfeeding or if mother is on treatment, through age 4–6 weeks |
| Option B | Triple ARVs starting as early as 14 weeks of pregnancy continued through childbirth (if not breastfeeding) or until 1 week after all breastfeeding has finished | | Daily prophylaxis (NVP or AZT) from birth through age 4–6 weeks regardless of infant feeding method |
| Option B+ | Triple ARVs started as soon as diagnosed and continued for life | | |
New Support for Option B+: Lowest MTCT with Preconception ART If Stay Suppressed

Madelbrot L et al. CROI 2015. Seattle, WA. Abs. 867

- French Perinatal Cohort: Overall MTCT 0.7% and was 0% (95% CI 0-0.1%) in 2,651 women starting ART before conception and RNA <50 at delivery.

**Delivery RNA and MTCT According to Time ART Initiation**

*threshold if assay LLD >50 c/mL
All Countries with Highest HIV Burden Have Now Adopted Either Option B or B+
Vertical Transmission Rates at 6 Weeks and Weaning in Selected African Countries

Source: UNAIDS 2013 estimates
Reasons for Residual MTCT

- Woman not offered HIV testing (test kit stock-outs) or she declines
- Late presentation to ANC in pregnancy limits opportunity to bring viral load down before childbirth
  - Access to the most effective regimens (resistance testing)
  - Reluctance to initiate ART due to stigma (lack of disclosure to partner/family a predictor of poor adherence)
  - Avoiding treatment interruption in pregnancy and breastfeeding (frequency of visits for new ART patients a burden on pregnant and postpartum women)
- Maternal genital tract infection-associated with HIV-RNA discordance between plasma and genital tract
  - Associated with increased MTCT
- Poor retention and adherence to ART especially during breastfeeding, lack of infant prophylaxis
Option B+: Various Models

- ART is initiated by ANC nurse in the same ANC exam room
  - Mom and baby followed in MNCH until 6 week EID visit, then transferred to HIV clinic
  - Mom and baby followed in MNCH until weaning, then transfer to HIV clinic
- HIV testing is conducted by the ANC nurse; women who test HIV+ are referred to HIV clinic (which could be in a different facility)
Option B+: Models and Record Keeping Implications

- Increasingly, women come into ANC as “known positives” and may already be on ART
  - Should she continue to get her ART at HIV clinic? Or should her HIV be managed in MNCH during pregnancy/postpartum? What if HIV and ANC clinic days are different? What if HIV clinic is in a different facility altogether?

- What are the record keeping implications of women bouncing between MNCH and HIV clinic? One of the goals of Option B+ was to reduce treatment interruptions in women with high fertility, but transfer from one service to another represents an opportunity to fall out of care.
Option B+: Results to Date

- Long-term Follow-Up (LTFU): Malawi: 577/2930 (20%) missed scheduled clinic visit by 3+ weeks: 47% did not return after initial initiation
  - LTFU associated with age <25, ART initiation in pregnancy, or started ART soon after introduction B+ (retention rates improved as program matured)
  - Patient tracing (219): 57% had stopped ART or never started (Trop Med Int Health 2014;19:1360)
Adherence and Retention in Pregnancy and Postpartum

- Systematic review/meta-analysis: 51 studies (27% US, 32% Africa): pooled estimate **75.7% adherence in pregnancy, 53% postpartum** (Nachega et al. AIDS 2012:26:2039)

- South Africa: 7510 ART naïve women initiating ART: 896 pregnancies: compared with non-pregnant women, increased risk of non-adherence in postpartum period (RR 1.46) but not in pregnancy (JAIDS 2015;68:477)

Conclusions

- PMTCT programs have dramatically reduced the number of new pediatric infections

- Option B+ represents an opportunity to virtually eliminate pediatric HIV whilst keeping HIV+ mothers alive and healthy

- Despite an overwhelming scientific and policymaker consensus in favor of Option B+, many implementation challenges remain