PEDIATRIC ARV & eMTCT: Achievements, challenges & the way forward

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Outline Content

Epidemiology of HIV in Children

Preferred first line ART for infants and children

Preferred second line ART regimens

Transition guidance to new ART formulations
Children (<15 years) estimated to be living with HIV | 2017

Total: 1.8 million [1.3 million–2.4 million]

*Estimates for children are not published because of small numbers.
Estimated number of children (<15 years) newly infected with HIV
2017

Total: 180 000 [110 000–260 000]

*Estimates for children are not published because of small numbers.
New HIV infections among children falling

Milestones as new HIV infections among children (aged 0–14 years) reduce towards elimination of mother-to-child transmission, global, 2008–2017

- WHO recommends Option A and Option B for the prevention of mother-to-child transmission
- WHO recommends countries to adopt Option B or Option B+
- Report of Mississippi baby highlights role of immediate infant diagnosis and treatment
- Launch of the Global Plan towards the elimination of new HIV infections among children by 2015 and keeping their mothers alive
- Malawi introduces immediate initiation and lifelong treatment with a triple regimen for pregnant women regardless of CD4 count (Option B+)
CASE 1

• A 6-week-old boy is brought to your Clinic for routine care. His mother does not know her HIV status.
• Prevalence of HIV in young women in Namibia is 12.1%. Next step?

  • Test baby with rapid HIV test
  • Clinical exam; check CD4
  • Test mother for HIV with rapid test, test baby with HIV NAT test if mother is positive
  • Test baby with HIV NAT test
Pediatric HIV: Unique Characteristics

- Diagnosis of HIV more complex in young children
- Different staging systems for children and adults
- CD4% used instead of absolute CD4 count especially in children < 5 yrs
- More rapid onset of disease
  - Children’s immune systems are developing
- More rapid immune restoration with ART in children
CASE 2

3-month-old with HIV

What is the likelihood of dying within 1-2 years?

- 5%
- 20%
- 40-50%

40-50%
HIV-1 RNA levels in infants compared to adults

- VL levels higher (untreated)
- Dosage of ARVs is determined using weight-banded dosing charts
- As children grow and gain weight, need to adjust ARV dosage accordingly
- Adherence depends primarily on caretaker
- Palatability of ART
Pediatric HIV Mortality

1 year mortality
– 26%
Spira 1999
– 35%
Newell 2004
– 40%
Obimbo 2004

Newell Lancet 2004;364:1236
Yearly Mortality (1994-2006) in HIV-Infected Children Enrolled in PACTG 219 Long-Term Follow-Up Study

Death rate in 1994: 7.2/100 pt-yrs

3,553 children
Median f/u 5.3 yrs
298 deaths

Death rate in 2006: 0.6/100 pt-yrs

HAART Era

Courtesy Mike Brady, Paige Williams
**HIV Lifecycle & Antiretroviral Mechanism of Action by Class**

- **Entry/Fusion/Attachment Inhibitor**
- **Protease inhibitor**
- **Mature HIV protein**
- **HIV maturation and budding**
- **Maturation inhibitor**
- **Integrase inhibitor**
- **HIV**
- **CCR5**
- **CD4**
- **CXCR4**
- **Proviral DNA**
- **Integration**
- **Reverse transcription**
- **DNA**
- **RNA**
- **Nucleoside/Nucleotide and Non-Nucleoside Reverse Transcriptase inhibitor**

Courtesy of Google images: ars.els-cdn.com/content/image/1-s2.0-S0163445309002758-gr1.jpg
ART Eligibility Criteria

• All HIV positive infants and children, irrespective of CD4 counts or WHO stage are eligible to start ART (Treat All).

• Patients should be initiated on ART immediately when they are ready
  • Same day or as soon as possible within one week.
Antiretroviral therapy for infants and children in Namibia
Preferred 1\textsuperscript{st} line Regimens
## Neonates

<table>
<thead>
<tr>
<th>Age</th>
<th>Preferred 1(^{st}) line</th>
<th>comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;2 weeks old, premature or low birth weight</td>
<td>AZT/3TC/NVP</td>
<td>Seek experienced provider or CM advice</td>
</tr>
<tr>
<td>2 weeks to &lt;4 weeks</td>
<td>AZT/3TC + LPVr*</td>
<td>If infant anaemic, seek specialist advice</td>
</tr>
</tbody>
</table>

*LPVr granules now available*
### 4 weeks to ≥3 years and 10 to <20 kg

<table>
<thead>
<tr>
<th>Age</th>
<th>Preferred 1st line</th>
<th>Alternative 1st line</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 weeks to 2 years old</td>
<td>*ABC/3TC/DTG1</td>
<td>ABC/3TC + LPVr</td>
</tr>
<tr>
<td>≥3 years and 10 to &lt;20 kg</td>
<td>*ABC/3TC/DTG1</td>
<td>ABC/3TC + EFV (if no PMTCT) ABC/3TC + [LPVr or **ATV+r] (if prior PMTCT)</td>
</tr>
</tbody>
</table>

*In development:*

- DTG 10 mg dispersible tablet; ABC60mg/3TC30mg/DTG5mg FDC

**If can swallow tablets whole**
**Adolescents**

<table>
<thead>
<tr>
<th>weight</th>
<th>Preferred 1(^{\text{st}}) line</th>
<th>Special situation</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 to &lt;30 kg</td>
<td>ABC/3TC-*DTG1 (50mg)</td>
<td>If adverse effects with DTG, ABC/3TC + [LPVr or ATV+r]</td>
</tr>
<tr>
<td>≥30 kg</td>
<td>TLD1 (same as adults and older adolescents)</td>
<td>Girls to be fully informed of potential risk of neural tube defect</td>
</tr>
</tbody>
</table>

*low stocks require current restrictions on use of DTG 50mg tab until end December; await routine use until further notice of availability.*

For now use ABC/3TC + either EFV or [LPVr or ATV+r] as applicable for 1\(^{\text{st}}\) line – same as 2016 GL.

When TAF available for use in children, replace ABC with TAF.
Overall, children were 0.2 percentage points (95% CI, 0.01% to 0.59%) more likely to have neural tube defects when their mothers were taking dolutegravir compared with any other ART regimen from conception.
### Preferred 1st line ART regimens for infants and children in Namibia

<table>
<thead>
<tr>
<th>Populations</th>
<th>Neonates &lt;2 weeks old, premature or low birth weight</th>
<th>Neonates 2 to &lt;4 weeks old</th>
<th>Infants 4 weeks to 2 years old</th>
<th>Children 3 years and 10 to &lt;20 kg</th>
<th>Adolescents 20 to &lt;30 kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preferred 1st line Regimen</td>
<td>AZT/3TC/NVP</td>
<td>AZT/3TC/LPV/r</td>
<td>ALD₁, b, c</td>
<td>ALD₁, b, c</td>
<td>ALD₁ a, b, e</td>
</tr>
<tr>
<td>Alternative 1st line Regimen(s)</td>
<td>Seek HIV experienced provider or Clinical Mentor advice</td>
<td>ABC/3TC/LPV/r</td>
<td>ABC/3TC/EFV (if no prior eMTCT)</td>
<td>ABC/3TC/ATV+r</td>
<td></td>
</tr>
<tr>
<td>Special Situations</td>
<td>If infant anaemic, seek Specialist advice</td>
<td></td>
<td>ABC/3TC/LPV/r, or ABC/3TC/ATV+r if prior eMTCT</td>
<td>ABC/3TC/ATV+r if SEs with DTG</td>
<td></td>
</tr>
</tbody>
</table>

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- **a** DTG as a single dose formulation
- **b** When TAF is available for lower weight children this would be preferred over ABC. (refer to Chapter 2 for further explanation regarding TAF)
- **c** When DTG available in appropriate formulation
- **d** LPV/r granules starting at 2 weeks or LPV/r solution starting 42 weeks following the start of mother’s LMP until 3 months old; when 10 kg and if can swallow tablets whole, can change to LPV/r 100/25mg
- **e** DTG 50mg adult formulation used at this weight
- **ALD₁** denotes ABC/3TC, DTG used as 1st line regimen
Summary - new approved age and weight thresholds for ARV formulations

- ABC for infants ≥4 weeks and ≥3 kg
- ATV 200mg capsules (+RTV 100mg) for children at least 10 kg if they can swallow whole
- DTG 50 mg tablet: for children at least 20 kg
- TDF 300mg: for children at least 30 kg
# Guidance on use of LPV/r Granules (New)

## LPV/r Formulations Available for Children:

<table>
<thead>
<tr>
<th>Formulation</th>
<th>Aged to</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPV/r syrup 80mg/20mg/mL</td>
<td>Infants 2 weeks &amp; older</td>
</tr>
<tr>
<td>LPV/r granules 40mg/10mg</td>
<td>Infants &amp; children 2 weeks - 4 or 5 years of age</td>
</tr>
<tr>
<td>Paediatric LPV/r tablets 100mg/25mg</td>
<td>Children who are able to swallow the tablets WHOLE without crushing, breaking or chewing them</td>
</tr>
</tbody>
</table>

**CRITICAL NOTE:** Paediatric Aluvia tablets **MUST BE SWALLOWED WHOLE**. Crushing or breaking these tablets should be avoided as it lowers drug levels significantly which may lead to viral failure and the development of HIV drug resistance.
Guidance on use of LPV/r Granules (New)

• Granules do not require cold chain
• Granules have improved taste and better tolerability than syrup
• Patients who should be prioritized for transition to LPVr granules:
   Children not tolerating LPVr syrup due to nausea, vomiting, or spitting out
   Children with elevated viral load secondary to difficulty with syrup administration
   Children on NVP
Preferred 2\textsuperscript{nd} line Regimens
# Preferred and alternative 2\textsuperscript{nd} line regimens

<table>
<thead>
<tr>
<th>Failing 1\textsuperscript{st} line regimen</th>
<th>Preferred 2\textsuperscript{nd} line regimen</th>
<th>Alternative 2\textsuperscript{nd} line regimens</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRTIs: ABC/3TC</td>
<td>AZT/3TC</td>
<td>if child anaemic, seek advice</td>
</tr>
<tr>
<td>NRTIs: AZT/3TC</td>
<td>ABC/3TC</td>
<td>TAF when available if &gt;20 kg</td>
</tr>
<tr>
<td>LPVr or ATV+r</td>
<td>DTG2</td>
<td>If &lt;20 kg and low dose DTG not available, give EFV (if no prior eMTCT) or do a genotype if prior eMTCT</td>
</tr>
<tr>
<td>EFV (or NVP)</td>
<td>DTG2</td>
<td>If &lt;20 kg, give ATV+r or LPVr</td>
</tr>
<tr>
<td>DTG1</td>
<td>*ATV+r or LPVr if never failed PI previously</td>
<td>EFV If cannot use PI and if no prior eMTCT; if prior eMTCT, do a genotype</td>
</tr>
</tbody>
</table>

\*ATV+r or LPVr if never failed PI previously
More about LPVr granules in sachets

- Doses are in number of sachets.
- 120 sachets of granules per pack
  - An infant who weighs 3kg to <6 kg: 2 sachets given bd, so 4 sachets per day – the pack will last 30 days
  - A child who weighs 6kg to <10 kg: 3 sachets given bd, so 6 sachets per day - will need 1.5 packs to last 30 days
- Administration of granules should be demonstrated to caregiver and reviewed at every clinical visit to identify challenges.
Opening LPV/r granule sachet

• Before opening sachet should be shaken so all granules settle towards bottom

• The top of sachet tears open easily (with dry or wet hands)

• Granules may remain at the bottom of the sachet so must make sure sachet is completely emptied
Administration of LPV/r granules with milk or

- Suspends in milk but some particles become sticky. Stir before each spoonful to keep granules in suspension
- Can also give directly from a spoon without mixing in liquid to infants and older children
- Initially sweet-tasting but RTV-bitterness unmasked very quickly
- Should follow with breastfeeding or other liquid between spoonfuls to ensure all granules are swallowed
Administration of LPV/r granules with soft food

- Mixes easily into 1-2 spoons of soft food (e.g., porridge, yogurt)
- Grittiness from granules remains
- RTV-bitterness unmasked quickly as granules are mixed into food
- Can follow each spoon given with a spoon of remaining porridge to be sure all granules are swallowed and bitter taste is removed between spoonfuls
Interim guidance on transition to Lopinavir/ritonavir (LPVr) granules

- All children currently on LPVr syrup and tolerating it well should be kept on this formulation until it is not available.
- Immediate utilisation of/change to LPVr granules:
  - Children *not* tolerating LPVr syrup
  - All children <5 years old initiating ART with LPVr
- Once a child is 10 kg and able to swallow LPVr (100mg/25mg) tablets (from ~ 5 years), then the tablets will be preferred for all.
- Once the current stock of LPVr syrup is used up, this formulation will no longer be available at CMS and will be replaced by LPVr granules.
The preferred second line regimens for children

<table>
<thead>
<tr>
<th>Failing first-line Regimen</th>
<th>Preferred second-line Regimen</th>
<th>Alternative second-line regimens</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC + 3TC + DTG(1)</td>
<td>AZT</td>
<td>AZT + 3TC + EFV</td>
</tr>
<tr>
<td>ABC + 3TC + LPVr (or ATV+r)</td>
<td>AZT</td>
<td>AZT + 3TC + EFV</td>
</tr>
<tr>
<td>ABC + 3TC + EFV</td>
<td>AZT</td>
<td>AZT + 3TC + EFV</td>
</tr>
<tr>
<td>AZT + 3TC + EFV</td>
<td>AZT</td>
<td>AZT + 3TC + EFV</td>
</tr>
</tbody>
</table>
TRANSITIONING SAFELY TO THE NEW PREFERRED ART REGIMENS
Transitioning infants and children to preferred ART regimens

- HCWs should identify infants and children currently on AZT, NVP or LPV/r
  - Carefully plan a change to the currently preferred regimens/formulations
- When DTG formulations for children who weigh <20 kg are available, then transition to the preferred DTG regimens should also be planned.
Transitioning children safely to the new preferred first line regimen

<table>
<thead>
<tr>
<th>Current ARVs</th>
<th>Last routine VL done within 6 months</th>
<th>VL&lt;40*</th>
<th>VL≥40</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC/3TC/PI</td>
<td>Change to ABC/3TC/DTG1</td>
<td>Continue ABC/3TC/PI while intensifying adherence counselling and follow-up, and evaluating for treatment failure and possible 2nd line if VL remains &gt;1000 copies/ml</td>
<td></td>
</tr>
<tr>
<td>AZT/3TC/PI</td>
<td>Change to ABC/3TC/DTG1</td>
<td>Continue AZT/3TC/PI while intensifying adherence counselling and follow-up, and evaluating for treatment failure and possible 2nd line if VL remains &gt;1000 copies/ml</td>
<td></td>
</tr>
<tr>
<td>ABC/3TC/EFV</td>
<td>Change to ABC/3TC/DTG1</td>
<td>Continue ABC/3TC/EFV (if on NVP change to EFV) while intensifying adherence counselling and follow-up, and evaluating for treatment failure and possible 2nd line if VL remains &gt;1000 copies/ml</td>
<td></td>
</tr>
<tr>
<td>ABC/3TC/NVP</td>
<td>Change to ABC/3TC/DTG1</td>
<td>Continue ABC/3TC/NVP while intensifying adherence counselling and follow-up, and evaluating for treatment failure and possible 2nd line if VL remains &gt;1000 copies/ml</td>
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<td>Change to ABC/3TC/DTG1</td>
<td>Continue AZT/3TC/EFV (if on NVP change to EFV) while intensifying adherence counselling and follow-up, and evaluating for treatment failure and possible 2nd line if VL remains &gt;1000 copies/ml</td>
<td></td>
</tr>
<tr>
<td>AZT/3TC/NVP</td>
<td>Change to ABC/3TC/DTG1</td>
<td>Continue AZT/3TC/NVP while intensifying adherence counselling and follow-up, and evaluating for treatment failure and possible 2nd line if VL remains &gt;1000 copies/ml</td>
<td></td>
</tr>
</tbody>
</table>

*If the most recent VL was taken more than 6 months previously; repeat the VL and determine potential transition to preferred regimens on receipt of that result. Viral load tests should not be done earlier than 6 months solely for the purpose of transitioning patients.

*If DTG not available in weight range switch to appropriate alternative first-line (LPVr or EFV)
Transitioning children safely to the new preferred second line regimen

<table>
<thead>
<tr>
<th>Current ARVs</th>
<th>Last routine VL done within 6 months$</th>
<th>VL&lt;40</th>
<th>VL&lt;40</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC/3TC/AZT/PI</td>
<td>if <em>ABC was part of first line, change to:</em> AZT/3TC/DTG(2)</td>
<td>Continue ABC/3TC/AZT/PI while intensifying adherence counselling and follow-up, and evaluating for treatment failure with possible 3rd line if VL remains &gt;1000 copies/ml</td>
<td></td>
</tr>
<tr>
<td>ABC/3TC/AZT/EFV or NVP</td>
<td>if <em>ABC was part of first line, change to:</em> AZT/3TC/DTG(2)</td>
<td>Continue ABC/3TC/AZT/EFV or NVP (if cannot EFV contraindicated) while intensifying adherence counselling and follow-up, and evaluating for treatment failure with possible 3rd line if VL remains &gt;1000 copies/ml</td>
<td></td>
</tr>
</tbody>
</table>

*If the most recent VL was taken more than 6 months previously; repeat the VL and determine potential transition to preferred regimens on receipt of that result. Viral load tests should not be done earlier than 6 months solely for the purpose of transitioning patients.
EMTCT-Elimination to Maternal to Child Transmission
Objectives – participants will be able to implement:

- Strategies for eMTCT
- HIV testing of Pregnant & BF women
- VL monitoring & management in PBFW
- Infant prophylaxis
- Infant testing
Four Strategies for Comprehensive eMTCT

1. Primary prevention of HIV infection. **PrEP, Ch.8**
2. Prevention of unintended pregnancy in HIV infected women. **FP counselling and commodities, Ch.7**
3. Prevention of HIV transmission from HIV infected women to their infants. **In 2018, 74% of HIV-infected Namibian infants who acquired HIV, did so during the BF period**
4. Provision of comprehensive care to mothers living with HIV, their children and families.

*Ref: COP2019 Outbrief, Namibia, Johannesburg, 14 Mar 2019*
Timing of Mother-to-Child Transmission with Breastfeeding and no ARVs

<table>
<thead>
<tr>
<th>Pregnancy</th>
<th>Labour and delivery</th>
<th>Early post-partum, 0-6 months</th>
<th>Late post-partum, 6-24 months</th>
</tr>
</thead>
</table>

Risk of transmission

- 5-20% to 10-40%
- 5-20%
- 5-20%

*Note: Rates vary because of differences in population characteristics such as maternal CD4+ cell counts, RNA viral load and duration of breastfeeding*
Most 2018 HIV+ infants (N=221) included, paired specimens, record review

Ref: COP2019 Outbrief, Namibia, Johannesburg, 14 Mar 2019
## Factors Associated with Increased MTCT

<table>
<thead>
<tr>
<th>Obstetrical</th>
<th>Maternal</th>
<th>Foetus/New-born</th>
<th>Viral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Episiotomy</td>
<td>High viral load</td>
<td>Prematurity</td>
<td>Viral type</td>
</tr>
<tr>
<td>Invasive monitoring</td>
<td>Low CD4 count</td>
<td>Multiple births</td>
<td>Viral resistance</td>
</tr>
<tr>
<td>Instrumental delivery</td>
<td>Advanced disease</td>
<td>Breastfeeding</td>
<td></td>
</tr>
<tr>
<td>Rupture of membranes (ROM) &gt;4 hours</td>
<td>Poor nutrition</td>
<td>Mixed feeding</td>
<td></td>
</tr>
<tr>
<td>Antepartum and intrapartum haemorrhage</td>
<td>Breast condition</td>
<td>Immature gastrointestinal tract</td>
<td></td>
</tr>
<tr>
<td>Amniocentesis</td>
<td>STIs</td>
<td>Genetic factors</td>
<td></td>
</tr>
<tr>
<td></td>
<td>New HIV infection</td>
<td>Immature immune system</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maternal TB</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Increased frequency of RT for HIV-negative pregnant and breast-feeding women (PBFW)

**Pregnant**
- First ANC
- every 3 months
- 36 weeks *

*if already tested HIV-neg at 32-35 wks, omit 36 wk test

**Post-natal**
- 6 weeks
- 3-monthly during BF period

For any positive HIV diagnosis, re-test and initiate same day ART

*Remember PrEP*
VL monitoring of HIV-positive PBFW on ART (if all VL results <40)

Pregnant
- First ANC (if not done in last 3 months)
- 3-monthly

Post-natal
- 6 weeks
- 3-monthly during BF period

If newly diagnosed HIV-positive do VL 3 months after ART initiation, then continue with schedule

**NB:** if diagnosed in late pregnancy/ intra-partum/early post-partum, omit 6-week VL; do 3 months after initiation and continue 3-monthly
Infant prophylaxis and testing
Infants at high risk of acquiring HIV+

• Classification of high vs average risk unchanged
• 3-part package of care for high risk infants
  1. Birth HIV NAT
  2. Dual infant prophylaxis (bd AZT + od NVP) for the first 6 weeks
     a. If high risk infant identified >72 hours of age, give NVP only
  3. Intensified infant tracking of NAT results and linkage to care for 2- and 6-week follow-ups (district point person)
Infant prophylaxis

• Average risk infants: NVP for first 6 weeks

• All HEIs:
  • Continue daily NVP from 6 weeks until whichever occurs first:
    • 4 weeks after the end of breastfeeding or
    • Mother’s VL is <40 copies/ml
<table>
<thead>
<tr>
<th>Infant age</th>
<th>Dosage of NVP 50 mg tablet</th>
<th>Alternative dose for NVP syrup (200mg bottle)</th>
<th>Dosage of AZT (10mg/ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth – 6 wks</td>
<td>NA</td>
<td>10 mg (1ml) once daily</td>
<td>10 mg (1ml) twice daily</td>
</tr>
<tr>
<td>• Birth wt. 2 to &lt;2.5 kg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Birth – 6 wks</td>
<td>NA</td>
<td>15 mg (1.5ml) once daily</td>
<td>15 mg (1.5ml) twice daily</td>
</tr>
<tr>
<td>• Birth wt ≥2.5 kg</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; 6 wks to &lt;6 months</td>
<td>25mg (1/2 tablet) daily</td>
<td>20 mg (2ml) once daily</td>
<td>NA</td>
</tr>
<tr>
<td>6 months to &lt;9 months</td>
<td>25mg (1/2 tablet) daily</td>
<td>30 mg (3ml) once daily</td>
<td>NA</td>
</tr>
<tr>
<td>9 months to 4 weeks after the end of BF</td>
<td>One 50 mg tablet daily</td>
<td>40 mg (4ml) once daily</td>
<td>NA</td>
</tr>
</tbody>
</table>
More about the NVP 50mg dispersible tablet

• Preferred over NVP syrup from 6 weeks of age
  • Easier to store and to give
  • Less expensive
• Cut tablet in half and then disperse to give 25mg dose
• Cannot be dispersed and drawn up with a syringe to get lower dose – can sediment and dosage therefore unreliable
HIV testing of HEIs (all results negative)

- **Birth NAT** if high risk
- **NEW:** 9 month NAT (not RT)
- **NEW:** RT at 18m or 3 m after end of BF *whichever is later*
- **NEW:** Any infant <18m needing HIV test: NAT
Why the change from 9-18 month screening RT to a NAT? – the evidence

• False negative RTs can occur when infant HIV-exposed and NAT positive
  • Kenyan study: 208 inpatient infants <18 m old and RT (+) mothers, infants: 79 DNA PCR (+), of these 13 RT(-)
    • Would have missed 13/79=16% of pos. infants with RT screen
  • Ugandan study: 3000 infants <24 m. in non-PMTCT entry points, 94 DNA PCR (+), of these 36 RT(-)
    • Would have missed 36/94=38% of pos. infants if relied on RT to determine need for NAT
  • Using RT as screen for NAT had 61.7% sensitivity and 42.5% positive predictive value
Why the change from 9-18 month screening RT to a NAT? – the hypotheses

Underlying causes of “false-negative” RT is not yet clear but may include:

- ART provided soon after incident infection in the mother may lower mother’s Ab leading to less Ab transfer
- Maternal infection in late pregnancy or post-partum - lack of Ab transfer
- In general, infants produce Ab more slowly than adults
- Delayed infant antibody (Ab) development due to VL reduction with maternal ART and infant prophylaxis
NEW: Indeterminate NAT result management

• Send another NAT sample 4 weeks from the initial NAT, labelling the sample “priority”
• If 2nd specimen is also “indeterminate”, for further review by a team of clinical and laboratory specialists.
  • Until a final diagnosis is reached, infant should remain on NVP and cotrimoxazole prophylaxis.
• If 2nd result positive, start ART, send confirmatory NAT
• If 2nd result negative, continue NVP, follow routine testing schedule.
Screening for HIV exposure in infants <18 months of age

• Ideal and preferred: test the biological mother.
• If biological mother unavailable, use NAT to screen infant for HIV exposure status
  • RT result will not help - can be false negative
On the horizon

• Point of care VLs and NATs
  • Limited number of POC VL geneXpert machines already in selected facilities (same machine as for TB diagnosis) availability of VL cartridges could be an issue.
All Couples Wishing to Have a Child

- Determine HIV status of both sexual partners
  - If either or both sexual partner are HIV positive and not on ART, initiate ART
- Counsel on the risks of MTCT
  - Only adoption carries no MTCT risk
- In case of discordant couples, counsel and offer PrEP to the uninfected partner.
- Check most recent VL – repeat if not done in the last 6 months
All Couples Wishing to Have a Child

- If not fully suppressed:
  - Do intensive counselling, support adherence, re-check VL in 3 - 6 months (depending on whether 40-999 or ≥1000 copies/ml)
  - Advise on the use of FP including condoms until VL fully suppressed
All Couples Wishing to Have a Child

- If VL(s) are fully suppressed, advise on peri-ovulatory unprotected sexual intercourse within days 10-18 of the woman’s menstrual cycle.
  - Discordant couples in which the male is HIV-negative have the option of artificial insemination, thus avoiding HIV transmission during the peri-ovulatory period
Already on ART among the Known Positive at 1st ANC by Region Apr17 - Jun 19

% already on ART of known positive at 1st ANC Apr17-Mar18
% already on ART of known positive at 1st ANC Apr18-Mar19
% already on ART of known positive at 1st ANC Apr 19-Jun19
<table>
<thead>
<tr>
<th>Namibia Paediatric and Adolescent HIV Statistics - Spectrum 2017</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults and children living with HIV</td>
<td>74 000</td>
<td>110 000</td>
<td>190 000</td>
</tr>
<tr>
<td>Adult HIV prevalence ages 15-49 years</td>
<td>9.50%</td>
<td>14.50%</td>
<td>12%</td>
</tr>
<tr>
<td>Children living with HIV (0-14 years)</td>
<td></td>
<td></td>
<td>12 000</td>
</tr>
<tr>
<td>Adolescents living with HIV (10-19 years)</td>
<td>4 400</td>
<td>5 900</td>
<td>10 300</td>
</tr>
<tr>
<td>New HIV infections among children 0-14 years</td>
<td>&lt;500</td>
<td>1 000</td>
<td>1 500</td>
</tr>
<tr>
<td>New HIV infections among adolescents</td>
<td>&lt;500</td>
<td>1 000</td>
<td>1 500</td>
</tr>
<tr>
<td>AIDS related deaths 0-14 years</td>
<td>&lt;100</td>
<td>&lt;100</td>
<td>&lt;200</td>
</tr>
<tr>
<td>AIDS related deaths 10-19 years</td>
<td>&lt;100</td>
<td>&lt;100</td>
<td>&lt;200</td>
</tr>
<tr>
<td>AIDS orphans</td>
<td></td>
<td></td>
<td>34 000</td>
</tr>
<tr>
<td>Mother to child transmission rate at end of breastfeeding</td>
<td></td>
<td></td>
<td>&lt;6%</td>
</tr>
<tr>
<td>Number and proportion of children 0-14 years on ART</td>
<td></td>
<td></td>
<td>76%</td>
</tr>
<tr>
<td>Viral suppression rates among children 0-14 years</td>
<td>74%</td>
<td>86%</td>
<td>80%</td>
</tr>
<tr>
<td>Viral suppression rates in adolescents 10-19 years</td>
<td>74%</td>
<td>70%</td>
<td>72%</td>
</tr>
</tbody>
</table>
Challenges

- Lack of adequate focus on strategies for prong 1 and 2 of eMTCT
- Low rates of couple counseling and testing in eMTCT.
- Long distances to health facilities and limited means of transport in rural areas
- Poor male participation in PMTCT
- Follow-up of HIV-positive mothers and their HIV-exposed babies
- Reporting to assist in monitoring and evaluation of PMTCT program
- Adequately trained staff to implement/sustain program
• HIV-disease progresses more rapidly in infants and children compared to adults
  ▪ Left untreated, HIV-related mortality is extremely high among infants and children
• All children are eligible for ART, irrespective of clinical or immunological stage
• Recommended ART Regimens for Infants and Children have been updated
  ▪ New pediatric formulations (e.g. LPV/r granules)
  ▪ Use of DTG in children
Key Points

• All PBFW & their partners should be encouraged to know their HIV status

• Frequency of testing of HIV-negative PBFW has increased to 3-monthly in the breastfeeding period

• VL testing frequency of HIV-positive PBFW is higher than in other HIV-positive patients and the response to high VL is more rapid
Key Points

• Manage HIV exposed infants according to risk stratification and mother’s VL
  ▪ Infants at high risk will have a birth NAT, dual prophylaxis for the first 6 weeks, and intensified tracking starting at the maternity ward
  ▪ Breastfeeding mothers’ with VL<40 can discontinue infant prophylaxis after 6 weeks

• 9-month old HEIs should have a NAT (not RT) to determine if HIV-infected.
Key Points

• All HEIs should have an RT at 18 months or 3 months after the end of breastfeeding *whichever is later* before confirmed HIV-negative

• It is important for HCWs to regularly address issues of fertility and child bearing with HIV-infected patients and help them plan for a safe pregnancy
References


• Namibia ART 6th Edition Guidelines, 2019

• WHO July 2019, HIV treatment guidelines