All HIV-infected children regardless of age, CD4 or VL should start on therapy as soon as they are diagnosed.

Gareth Tudor-Williams

6th International Workshop on HIV Pediatrics
18th July 2014
Children (<15 years) living with HIV, 2012

- Sub-Saharan Africa: 2.9 million
- Middle East & North Africa: 20,000
- North America: 4,500
- Caribbean: 16,000
- Latin America: 40,000
- Eastern Europe & Central Asia: 19,000
- South & South-East Asia: 200,000
- East Asia: 8,200
- Western & Central Europe: 1,600

Total = 3.3 million (3.0 – 3.7 million)

UNAIDS report 2013
Our children are not sooty mangabeys!
HIV is not good for children
Clinical Features of HIV Infection

- Suppurative ear infection
- Enlarged parotids
- Enlarged lymph nodes
- Enlarged liver and/or spleen
- Clubbing
- Herpes zoster infection
- Unusual organisms
- Progressive encephalopathy
- Anaemia
- Frequent nose bleeds
- Severe oral thrush
- Failure to thrive
- Severe pneumonia
  - TB
  - LIP
  - Pneumocystis carinii
- Severe nappy rash
- Recurrent or persistent diarrhoea
- Easy brusing
Clinical Features of HIV Infection

- Suppurative ear infection
- Enlarged parotids
- Enlarged lymph nodes
- Enlarged liver and/or spleen
- Clubbing
- Herpes zoster infection
- Unusual organisms
- Progressive encephalopathy
- Anaemia
- Frequent nose bleeds
- Severe oral thrush
- Failure to thrive
- Severe pneumonia
  - TB
  - LIP
  - Pneumocystis carinii
- Severe nappy rash
- Recurrent or persistent diarrhoea
- Easy bruising
Clinical Features of HIV Infection

- Suppurative ear infection
- Enlarged parotids
- Enlarged lymph nodes
- Enlarged liver and/or spleen
- Clubbing
- Herpes zoster infection
- Unusual organisms
- Progressive encephalopathy
- Anaemia
- Frequent nose bleeds
- Severe oral thrush
- Failure to thrive
- Severe pneumonia
- TB
- Pneumocystis carinii
- Severe nappy rash
- Recurrent or persistent diarrhoea
- Easy brusing
Clinical Features of HIV Infection

- Progressive encephalopathy
- Anemia
- Frequent nose bleeds
- Severe oral thrush
- Severe pulmonary infection
  - TB
  - LIP
  - Pneumocystis carinii
- Severe nappy rash
- Recurrent or persistent diarrhea
- Easy bruising
- Unusual organisms
- Enlarged lymph nodes
- Enlarged liver and/or spleen
- Clubbing
- Herpes zoster infection
- Enlarged parotid glands
- Sinusitis ear infection
Clinical Features of HIV Infection

- Suppurative ear infection
- Enlarged parotids
- Enlarged lymph nodes
- Enlarged liver and/or spleen
- Clubbing
- Herpes zoster infection
- Progressive encephalopathy
- Anaemia
- Frequent nose bleeds
- Severe oral thrush
- Failure to thrive
- Severe pneumonia
- TB
- LIP
- Pneumocystis carinii
- Severe haemoptysis
- Recurrent or persistent diarrhoea
- Easy bruising
- Unusual organisms

Potential for onward transmission...
# Indications for Initiation of ART in Children <5yrs of Age

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regardless of clinical symptoms, immune status, or viral load</td>
<td><strong>Treat</strong></td>
</tr>
</tbody>
</table>
Modelling the CD4 count into adult life –

< 5yrs more CD4 recovery than older children

Courtesy of Prof Nigel Klein
<table>
<thead>
<tr>
<th>Age (yr)</th>
<th>WHO 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1</td>
<td><strong>ALL</strong></td>
</tr>
<tr>
<td>1-3</td>
<td><strong>ALL</strong></td>
</tr>
<tr>
<td></td>
<td><em>Prioritise:</em></td>
</tr>
<tr>
<td></td>
<td>1-2 years</td>
</tr>
<tr>
<td></td>
<td>Stage 3/4</td>
</tr>
<tr>
<td></td>
<td>CD4 &lt; 750 &lt; 25%</td>
</tr>
<tr>
<td>3-5</td>
<td><strong>ALL</strong></td>
</tr>
<tr>
<td></td>
<td><em>Prioritise:</em></td>
</tr>
<tr>
<td></td>
<td>Stage 3/4</td>
</tr>
<tr>
<td></td>
<td>CD4 ≤ 750 ≤ 25%</td>
</tr>
<tr>
<td>&gt;5</td>
<td><strong>CD4 ≤ 500</strong></td>
</tr>
<tr>
<td></td>
<td><em>Prioritise:</em></td>
</tr>
<tr>
<td></td>
<td>Stage 3/4</td>
</tr>
<tr>
<td></td>
<td>CD4 ≤ 350</td>
</tr>
<tr>
<td></td>
<td>Active TB any CD4</td>
</tr>
<tr>
<td>Age (yr)</td>
<td>WHO 2013</td>
</tr>
<tr>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>&lt; 1</td>
<td>ALL</td>
</tr>
<tr>
<td>1-3</td>
<td>ALL</td>
</tr>
<tr>
<td></td>
<td><em>Prioritise:</em> 1-2 years</td>
</tr>
<tr>
<td></td>
<td>Stage 3/4</td>
</tr>
<tr>
<td></td>
<td>CD4 &lt;750 &lt;25%</td>
</tr>
<tr>
<td>3-5</td>
<td>ALL</td>
</tr>
<tr>
<td></td>
<td><em>Prioritise:</em> Stage 3/4</td>
</tr>
<tr>
<td></td>
<td>CD4 ≤ 750 ≤ 25%</td>
</tr>
<tr>
<td>&gt;5</td>
<td>CD4 ≤ 500</td>
</tr>
<tr>
<td></td>
<td><em>Prioritise:</em> Stage 3/4</td>
</tr>
<tr>
<td></td>
<td>CD4 ≤ 350</td>
</tr>
<tr>
<td></td>
<td>Active TB any CD4</td>
</tr>
</tbody>
</table>

By the time you have treated all children with:

- CD4 <500
- WHO stage 3 or 4
- TB or HBV or HCV
- pregnant young women…

Who’s left?
Based on WHO 2013 guidelines, 83% of the 176,948 children in Uganda would be eligible for ART.

What does it take health care workers to tease out the 17% from 83%?

Eligible for ART
146,535
83%

Not Eligible for ART
30,413
17%

Courtesy of Peter Elyanu
MoH, Uganda
Many eligible children would be missed if CD4 and WHO staging are used to determine ART eligibility.
Retention of HIV-infected children and adolescents in follow-up:

**Figure 1.** Retention in care, HIV-infected children and adolescents in a facility-based family-centred approach (FBFCA) and a community home-based care (CHBC) model, on and not on anti-retroviral therapy (ART), Kampala, Uganda, 2003-2010

<table>
<thead>
<tr>
<th>Model</th>
<th>Number in care</th>
<th>Percent retained in care</th>
</tr>
</thead>
<tbody>
<tr>
<td>FBFCA (all on ART)</td>
<td>163</td>
<td>0.75</td>
</tr>
<tr>
<td>CHBC (on ART)</td>
<td>441</td>
<td>0.50</td>
</tr>
<tr>
<td>CHBC (not on ART)</td>
<td>1019</td>
<td>0.25</td>
</tr>
</tbody>
</table>

Log-rank test, p<0.001

Community home-based care (on ART)
Facility-based family-centered approach (on ART)
Community home-based care (not on ART)
Ministry of Health

ADDENDUM TO
THE NATIONAL
ANTIRETROVIRAL TREATMENT
GUIDELINES

JANUARY 2014
Treat ALL children <15!

- Remove the barriers such as lack of access to CD4 counts / WHO staging
- Improve retention in care
- Enable decentralisation
- Achieve better longterm outcomes in terms of growth, neurocognitive development
- Decrease risk of onward transmission
- Improve the viability of the paediatric ARV market
- Reduce the risk of stock-outs
<table>
<thead>
<tr>
<th>Age</th>
<th>WHO 2013</th>
<th>USA – DHHS 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1</td>
<td>ALL</td>
<td>ALL</td>
</tr>
<tr>
<td>1-3</td>
<td>ALL&lt;br&gt;&lt;br&gt;<em>Prioritise:&lt;br&gt;1-2 years&lt;br&gt;Stage 3/4&lt;br&gt;CD4 &lt;750 &lt;25%</em></td>
<td>CD4 &lt; 1000 &lt;25%&lt;br&gt;Category B/C&lt;br&gt;&lt;br&gt;<em>Consider in ALL&lt;br&gt;Especially if VL &gt; 100,000</em></td>
</tr>
<tr>
<td>3-5</td>
<td>ALL&lt;br&gt;&lt;br&gt;<em>Prioritise:&lt;br&gt;Stage 3/4&lt;br&gt;CD4 ≤ 750 ≤ 25%</em></td>
<td>CD4 &lt;750 &lt;25%&lt;br&gt;Category B/C&lt;br&gt;&lt;br&gt;<em>Consider in ALL&lt;br&gt;Especially if VL &gt; 100,000</em></td>
</tr>
<tr>
<td>&gt;5</td>
<td>CD4 ≤ 500&lt;br&gt;&lt;br&gt;<em>Prioritise:&lt;br&gt;Stage 3/4&lt;br&gt;CD4 ≤ 350&lt;br&gt;Active TB any CD4</em></td>
<td>CD4 &lt; 500&lt;br&gt;Category B/C&lt;br&gt;&lt;br&gt;<em>Consider in ALL&lt;br&gt;Especially if VL &gt; 100,000</em></td>
</tr>
</tbody>
</table>
Pediatric ARV treatment failure – reasons and consequences:

- **POOR ADHERENCE**
- **DIMINISHED EFFICACY**
  - Impaired absorption
  - Under-dosing
  - Difficult regimen
  - Drug interactions
  - PK-PD individual variat’n

- **VIRAL RESISTANCE**

Transmitted resistance / pMTCT

Helena Rabie
Vote in favour of the motion!!

the time for action is NOW