90-90-90

Improving access to infant and child HIV diagnostic
2015 treatment coverage

Number of people receiving antiretroviral therapy, 2000–2015

“15 BY 15”
A GLOBAL TARGET ACHIEVED
SUCCESS

UNAIDS
Global ART coverage is lower among children

- Children: 32%
- Adults: 41%
Ambitious, but achievable, new target

90% diagnosed
90% on treatment
90% virally suppressed
Looking at 90-90-90 from the child’s perspective

Pediatric 90-90-90

Test 90
90% of HIV-infected children know their status

Treat 90
90% of those initiated on treatment

Retain 90
90% of those achieve viral load suppression

![Baby on white blanket](image)
Children “only” account for about 6-7% of people in need of ARV treatment.
Why are people not accessing treatment?

• Lack of knowledge of HIV status
• Punitive policies and laws
• Stigma and discrimination in health care settings and the community
• Stretched health care workers
• Disparities in access to affordable medicines
• Disparities in investments
Access To Virologic HIV Testing (Early Infant Diagnosis) 2012

*Lesotho data represents 2011 coverage data
Reduced commodity prices

-40% EID price reduction

- $150 million in cost savings over the next five years.
- Will change the market for viral load testing in LMICs by improving access and competition.
EID Agreement yields results

- 200,000 Tests
- USD 500,000
Relative likelihood of HIV-positive adults (15-49 years) accessing antiretroviral therapy due to the distance from their nearest primary healthcare facility.

Source: Location, Location: Connecting people faster to HIV services, UNAIDS; Geneva, 2013
With conventional EID, many test results are never received by the infant or caregiver

Based on an average of 3 countries from a UNICEF review of EID service delivery, 50% of positive EID test results are NOT received by the patient

Sources: 1A Multi-Country Review of HIV Early Infant Diagnosis Service Delivery 2009

- Wasted reagents
- Wasted HR time
- Unnecessary repeat testing
- Infants lost to follow-up before receiving results
- Poor linkage between testing and care & treatment
- High infant mortality
POC HIV EID (and viral load) products: available and pipeline*

*Estimated as of December 2014; timeline and sequence may change. No market launch date set by company.

Platforms in red have specific EID assay.
### Next stage POC Technologies – 2016

<table>
<thead>
<tr>
<th>Device</th>
<th>Testing Menu</th>
<th>Core Technology</th>
<th>Predicted Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lumora</td>
<td>HIV VL &amp; EID</td>
<td>Manual NA extraction, Isothermal NAAT, Bioluminescence detection</td>
<td>2016</td>
</tr>
<tr>
<td>Tulip molbio</td>
<td>HIV VL &amp; EID, TB+ DST, HBV, Malaria</td>
<td>Automated NA extraction Gen 2, qPCR NAAT, Fluorescence detection</td>
<td>2016</td>
</tr>
<tr>
<td>WAVE 80</td>
<td>HIV VL &amp; EID</td>
<td>Automated NA extraction, Isothermal NAAT, Fluorescence detection</td>
<td>2016</td>
</tr>
<tr>
<td>Roche</td>
<td>HIV VL</td>
<td>Integrated NA extraction, qPCR NAAT, Fluorescence detection</td>
<td>2016</td>
</tr>
<tr>
<td>Quidel</td>
<td>HIV VL</td>
<td>Integrated NA extraction, NAAT, Fluorescence detection</td>
<td>2016</td>
</tr>
<tr>
<td>NWGHF</td>
<td>EID</td>
<td>HIV p24 antigen, Lateral flow detection</td>
<td>2016</td>
</tr>
</tbody>
</table>
# Next stage POC Technologies – Beyond 2016

<table>
<thead>
<tr>
<th>Device</th>
<th>Testing Menu</th>
<th>Core Technology</th>
<th>Predicted Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tulip molbio</td>
<td>HIV VL &amp; EID, TB+ DST, HBV, Malaria</td>
<td>qPCR NAAT Gen 3</td>
<td>Beyond 2016</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fluorescence probes detection</td>
<td></td>
</tr>
<tr>
<td>QuantuMDx</td>
<td>HIV EID, TB + DST, Malaria, STIs, others</td>
<td>qPCR NAAT</td>
<td>Beyond 2016</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Microarray nanowire detection</td>
<td></td>
</tr>
<tr>
<td>USTR</td>
<td>HIV VL, TB + DST</td>
<td>Isothermal NAAT</td>
<td>Beyond 2016</td>
</tr>
<tr>
<td>Nanobiosym</td>
<td>HIV VL, ebola, others</td>
<td>Lab-on-Chip, real-time detection</td>
<td>Beyond 2016</td>
</tr>
<tr>
<td>Micronics</td>
<td>EID, <em>E. coli.</em> Others</td>
<td>NAAT</td>
<td>Beyond 2016</td>
</tr>
<tr>
<td>Daktari Diagnostics</td>
<td>HIV &amp; HCV VL</td>
<td>Electrochemical amplification</td>
<td>Beyond 2016</td>
</tr>
</tbody>
</table>
**Beyond 2016 - device-free**

<table>
<thead>
<tr>
<th>Developer</th>
<th>Technology</th>
<th>Applications</th>
</tr>
</thead>
</table>
| **DIAGNOSTICS FOR ALL** | • Paper-based microfluidics  
• Isothermal NAAT  
• Lateral flow detection | • EID, Malaria, Ebola, other |
| **RICE**         | • Isothermal NAAT                               | • EID, HIV VL, cryptosporidium    |
| **PATH**         | • Isothermal NAAT  
• Lateral flow detection  
• Power-free heater unit | • EID |
| **STANFORD BIOENGINEERING** | • Paper-based microfluidics  
• Isothermal NAAT | • EID |
| **SLIPCHIP**     | • Plastic microfluidics  
• Isothermal digital NAAT  
• Smartphone App | • HIV, HCV, VL, C.diff, other |
## Barriers to new technologies

<table>
<thead>
<tr>
<th>Pre-market barriers</th>
<th>Post-market barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>– Small and uncertain market</td>
<td>– Slow country evaluations of new technologies</td>
</tr>
<tr>
<td>– Insecure investment to complete development and</td>
<td>– Unpredictable procurement practices</td>
</tr>
<tr>
<td>commercialization</td>
<td>– Competition with existing platforms</td>
</tr>
<tr>
<td>– Uncertain prioritization</td>
<td>– Low volumes and difficult quality management</td>
</tr>
<tr>
<td>– Difficult regulatory approval pathways</td>
<td></td>
</tr>
</tbody>
</table>
The share of Lab portfolio varies by country

- Malawi: 4%
- Ethiopia: 9%
- Rwanda: 6%
- Zambia: 5%
- RSA: 15%

Source: ASLM
Multiple actors in paediatric treatment

**Advocacy / Political**
- The Global Plan
- The Double Dividend
- UNITAID/MPP/DNDI paediatric initiatives
- IATT
- ...

**Normative / Technical**
- WHO guidelines
- UNICEF
- Implementers
- ...

**Financing**
- PEPFAR
- The Global Fund
- UNITAID
- Foundations
- Domestic
- ...

---

UNAIDS
Partnering for success