The Financial Implications of Reaching Global Treatment and Prevention Goals

Clinton Health Access Initiative (CHAI)
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As we near global consensus toward ‘test and offer’ it is time to tackle remaining questions on the cost and priorities for HIV programming.

1. How strong is the rationale to scale up ART more aggressively?

2. Can we afford to put more people on treatment?

3. What should our priorities be going forward?
We already knew that ART can massively reduce the risk of new infections.

HPTN 052 study
New infections amongst sero-discordant couples
Now we have strong evidence that early initiation significantly improves patient outcomes.

START trial
Instances of AIDS, serious non-AIDS events or death

53% reduced risk of serious illness or death
To get these benefits, we would need to scale up ART significantly. At first glance, this appears to be prohibitively costly.

People eligible for, and on, ART

However, over the past 6 years, we have tripled the number of patients on ART while funding levels increased by only 40%.

*Resources available for HIV programs in low and middle income countries. UNAIDS, Global AIDS Gap Reports, 2012 & 2013.
This was possible because the marginal costs of adding a patient to treatment were far lower than what many people thought.

Cost estimates of Treatment Per ART Patient-Year (USD)

- General perception
- PEPFAR costing, 2006/7
- CHAI costing, RSA, 2010/11
- CHAI costing, LICs/LMICs, 2010/11
- PEPFAR costing, Kenya, 2010

- $200
- $400
- $600
- $800
- $1,000
- $1,200

80% 85%
Low cost models of ART service delivery are continuing to get more efficient, which are driving down overall costs, particularly in LICs/LMICs.

- In a recent CHAI analysis, facility-level ART costs remained similar between 2010 and 2014, with increases only driven by switch from D4T to TDF.

- Facilities nearly doubled patient loads between 2010 and 2014, but task-shifting and MMS enabled facilities to maintain similar staffing levels.

- During the same time period, nationwide retention has increased.

### Malawi: Total ART Cost PPPY

- Non-ARV costs decreased by 40%

<table>
<thead>
<tr>
<th>Year</th>
<th>Non-ARV</th>
<th>ARV</th>
<th>Total ART Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>$131</td>
<td></td>
<td>$202</td>
</tr>
<tr>
<td>2014</td>
<td>$148</td>
<td></td>
<td>$203</td>
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...and we expect those costs to keep going down – particularly in low and lower-middle income countries – as a result of three key factors

1. Changing patient mix
   - Higher eligibility criteria means more healthy patients, requiring less intensive care

2. Falling commodities costs
   - ARV, CD4 and VL costs are continuing to come down, though more slowly than in the past

3. Economies of scale/Simplified models of care
   - Fixed costs spread over more patients
   - Continuing trends towards differentiated care models for stable patients through task shifting, fewer facility visits etc.

*In generic accessible countries. Source: CHAI - The State of the Antiretroviral Drug Market in Low- and Middle-Income Countries, ISSUE 5, December 2014
Differentiated models of service delivery have the potential to drive efficiency gains and maximize resources.

**Non-Stable Patients**
- Increased attention to OI screening and care
- Focused care with higher-level cadres
- Targeted adherence counseling
- Linkage to community based services
- Access to multi-month scripts and/or fast-track refills
- Care primarily provided through lower level cadres

**Stable Patients**

**Determination of Patient Status** (ideally through VL)

**Examples of Differentiated Care Models**
- **Multi-Month Prescriptions** (Malawi, Zambia, Swaziland); **Fast-Track Refills** (Malawi);
- **Community ART Distribution Groups (MSF)** (Mozambique, Swaziland), etc.
At current costs, CHAI estimates suggest universal access is affordable, with facility-level ART costs requiring 45-55% of available HIV funding.

Estimated facility-level ART costs relative to available HIV funding (billion USD)

- The funding required to maintain people on treatment does not appear prohibitive: universal access under 2013 guidelines would require ~46% of available HIV funding.
- Moving to the more aggressive goal of 90-90-90 only adds 1.4B more, reaching ~53% of HIV funding.
- Annual testing costs will vary significantly depending on level of targeting and timeline to reach targets.

**Notes:**
1. Defined as 81% PLHIV
2. Also includes implementation of Option B+ and treatment for serodiscordant couples.
Outside of ART, we also have to be smart about how we invest in identifying new patients through HIV testing.

The cost of home-based testing in different geographies:

- Costs per person added to ART are hugely impacted by both yield and the strength of linkage systems.
- Reaching the first and second ‘90s’ will require countries to carefully target testing to carefully optimize coverage and cost.
- Other interventions, such as VMMC, PrEP, and condoms also need to be carefully targeted.
Minimizing the HTC resource needs to reach 90-90-90 will require countries to move from ‘test everyone’ to prioritized strategies.

**Zimbabwe: Estimated pediatric (0-14 years) yields by entry point**

- **TB**: 69.0%
- **Malnutrition**: 28.4%
- **Growth**: 15.5%
- **Inpatient**: 15.5%
- **Index testing**: 14.0%
- **EPI**: 6.1%
- **PMTCT**: 6.1%
- **Outpatient**: 5.4%
- **Campaign testing**: 2.1%

100,000 tests will identify 28,000 peds
100,000 tests will identify 2,000 peds

Even the funding were available, few countries have the human resources to reach 90-90-90 without prioritization.
Targeting is also critical for prevention interventions including VMMC and PrEP; costs could become prohibitive if not rolled out strategically.

**PrEP Example: Cost Per Infection Averted**

- **Treatment as Prevention**
  - Cost: $8,375

- **PrEP: 3% Incidence (FSW, Kenya)**
  - Cost: $5,593

- **PrEP: 0.1% Incidence (General Population, Kenya)**
  - Cost: $128,205

(Note: These calculations assume 100% adherence to PrEP among client population.)
Once patients are identified, we need to make sure we get the most of ART investments; we currently lose a lot of gains through poor retention.

**Illustrative**

**TESTED**

- Investment made, limited/no impact

**PLWHIV**

- Missed opportunity to have impact

**LINKED**

- Losses in testing

**ON ART**

- Losses in testing, linkage and care

**SUPPRESSED**

- Losses in testing, linkage, care and treatment

Max. return on investment

Ongoing infections, morbidity and mortality
MICs/HICs—which have more capacity to commit domestic resources to their response—account for 77% of total resource needs at 90-90-90.
The rationale for scaling up ART is clear, and the evidence is there for both prevention and curative benefits.

We can afford to maintain as many as 100% of PLHIV on treatment given available resources and low facility-level costs.

The priorities going forward need to be:

a. Further efficiency gains within ART spending through implementation/scale up of differentiated care for stable patients

b. Targeted and efficient spending outside of treatment – in particular for testing and biomedical prevention that will need to prioritize high yield strategies and populations

c. Improved retention along the cascade, so we don’t waste the hard-won gains
Thank you!