

**Background**

The World Health Organization (WHO) recommends community testing in generalised epidemics (1). However, this strategy is not widely used in the South African public sector due to cost concerns. In its 2015 Testing Guidelines, the Department of Health of South Africa (DoH) endorses voluntary alongside provider-initiated testing models in clinic, community and home-based scenarios with the aim to achieve 90% of those HIV-infected aware of their status (2).

Aligned with the WHO and DoH mandates, Médecins Sans Frontières started three innovative community HIV testing and counselling (HTC) models in eShowa and Mbongolwane in rural KwaZulu Natal in 2012.

- **Mobile outreach testing (MT)** and stand-alone, fixed testing sites (FTS) manned by lay HIV counselors, and
- **Home-based door-to-door testing (D2D)** delivered by community health workers.

These models contain in reaching young people and men, who do not test in health facilities, and create opportunities to link HIV-people to preventive services (e.g. to Voluntary Male Circumcision) and to link HIV+ people to HIV care and treatment.

**Aim**

To describe the cost of HIV testing from a service provider perspective for three community testing models: door-to-door testing (D2D), mobile testing (MT) and fixed testing sites (FTS).

**Methods**

- **Service provider perspective costing using real world expenditure data.**
- **Assumptions such as wastage, staff capacity, vehicle maintenance were informed by actual work practices.**
- **Unit costs were established using an ingredients-based approach stratifying costs by: diagnostics; staff time; sensitization; infrastructure; communication; transportation and other equipment.**
- **The primary outcome was cost per HIV- and HIV+ client tested in each model in 2014/2015 in South African Rand (R) converted to USD ($) using the conversion rate of 31 December 2014, $1= R11.54.**
- **We assumed that testing providers worked solely on HTC and that time spent with one HIV+ client was twice that with a HIV- client.**
- **Testing is done by lay counsellors in FTS and MT, and by community health workers for D2D. Other categories of staff were community mobilisers, community mobiliser supervisors, activity supervisors, data capturers, drivers, and community health worker team leaders.**

**Results**

- **In 2014 32,361 individual HIV tests were done in community testing, of which 4.1% were HIV+: 15,079 (3.3% HIV+) through D2D; 11,580 (3.3% HIV+) in MT; and 7,106 (6.9% HIV+) in FTS.**
- **Community health workers were increased from in 2014 to 76 in 2015.**
- **In 2015 57,903 (3% HIV+) tests were done: 36,758 (1.4% HIV+) through D2D and 21,145 (6% HIV+) in MT and FTS combined.**
- **Community testing reached more young people, men and people with higher CD4 counts, all groups who are missed by clinic-based HTC.**
- **The overall cost per client tested through the community testing program in 2015 was $7.42: $10.32 for MT, $10.12 for FTS and $7.08 for D2D, compared to a Ministry of Health estimate of $7.07 to $7.97 for clinic-based testing (3).**
- **The main driver of cost was staff salaries, which ranged from $5.12 (66%) for D2D to $7.60 (75%) for FTS. This cost decreased with increasing numbers tested and number of community health workers in the D2D programme.**
- **At $7.87 the cost of the 3 models of community testing combined was only slightly higher than the government estimate of cost of facility HTC at $7.07 and the cost of D2D was the lowest.**

<p>| Table 1. Cost (USD) and proportion per client tested by ingredient category in each model |</p>
<table>
<thead>
<tr>
<th>Fixed Testing</th>
<th>Mobile testing</th>
<th>Door-to-door</th>
<th>All community</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnostics</td>
<td>Cost ($)</td>
<td>%</td>
<td>Cost ($)</td>
</tr>
<tr>
<td>1.64</td>
<td>16%</td>
<td>1.61</td>
<td>16%</td>
</tr>
<tr>
<td>Staff</td>
<td>7.60</td>
<td>75%</td>
<td>6.81</td>
</tr>
<tr>
<td>Sensitization</td>
<td>0.10</td>
<td>1%</td>
<td>0.06</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>0.31</td>
<td>3%</td>
<td>-</td>
</tr>
<tr>
<td>Transport</td>
<td>-</td>
<td>0%</td>
<td>1.47</td>
</tr>
<tr>
<td>Communication</td>
<td>0.14</td>
<td>1%</td>
<td>0.11</td>
</tr>
<tr>
<td>Equipment</td>
<td>0.34</td>
<td>3%</td>
<td>0.25</td>
</tr>
<tr>
<td>Total per client</td>
<td>10.13</td>
<td>100%</td>
<td>10.32</td>
</tr>
</tbody>
</table>

Cost of FT & MT is for 2014, and of MT and all for 2015.

**Conclusions**

- **Cost of a community testing programme combining FT, MT and D2D was comparable to cost of MoH clinic-based HTC and led to dramatic increases in testing.**
- **Proportion HIV+ among people tested in the community was much lower than population prevalence, but in addition to identifying hard to reach HIV+ groups, these models also allow HIV- individuals to be linked to TB and STI screening, medical male circumcision and condom distribution points, and family planning.**
- **Community testing needs not cost more than clinic-based testing if lay cadres, such as community healthcare workers, can be engaged at a large scale.**
- **Limitation: staff cost for HTC is overestimated as it is assumed that testing providers work solely on HTC, whilst in reality they also perform other tasks.**
- **This evidence supports wider adoption of community testing in South Africa, especially door-to-door testing, to reach populations such young adults, men (at high risk of acquiring as well as transmitting HIV), and children (at high risk of morbidity).**

**References:**