COSTS OF HOME-BASED HIV TESTING IN ZAMBIA: EVIDENCE FROM THE HPTN 071 (PopART) STUDY

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BACKGROUND

More than 14.5 of the 36.7 million people living with HIV globally do not know their HIV status, making comprehensive testing interventions a critical first step in ending the AIDS epidemic. Home-based testing and counselling (HBTC) involves small teams of community health workers with basic training going from door-to-door and offering services in people’s homes. There is very limited robust evidence on the costs of HBTC delivery. Previous study estimates range from $5.80 to $38.80 for cost per person tested, and $42.40 to $454.40 for cost per person tested positive.1 The HPTN 071 (PopART) trial conducted population-wide HBTC rounds in Zambia.2

STUDY COMMUNITIES

The study

The HPTN 071 (PopART) trial is being conducted in 12 communities in Zambia (and 9 in South Africa). The trial (2013-2017) is investigating the impact on HIV incidence of the PopART intervention. ‘Community’ is defined as the catchment area of a health care facility providing anti-retroviral therapy (ART). The communities in Zambia were formed into four matched triplets based on estimates of their HIV prevalence. In each matched triplet two communities were randomised to the intervention arm and one to the control arm. Average baseline HIV prevalence across sites in Zambia was 22%.

HBTC UNDER THE POPART INTERVENTION

The PopART intervention is a combination prevention package. It comprises annual rounds of HBTC delivered by community HIV-care providers (CHPs) who also support linkage to care, ART retention, and other services. CHPs work in pairs, with each pair serving a zone consisting of around 500 households. In total 412 CHPs provide HBTC in Zambia.

From data eight communities in Zambia receiving the full intervention were used to estimate the total costs per year, cost per person tested, and cost per person testing positive (yield from HBTC).

METHODOLOGY

MICRO-COSTING

We applied micro-costing methods to estimate the economic costs of HBTC delivered to over 250,000 individuals between December 2013 and December 2016.

• Total costs, cost per person tested, and cost per person tested positive were calculated. Data on salaries, equipment, supplies, transport, and general administration were extracted from program records, and merged with outcome indicators from program data.

• Personnel costs were allocated to communities by number of CHPs teams in each community.

• Costs associated with HIV testing were allocated by number of tests conducted and other cost components were allocated by population covered.

• All equipment and training costs were adjusted to estimated equivalent annual costs over the lifetime of the study. All costs were adjusted for inflation and are presented as 2016 US$

Probabilistic sensitivity analysis (PSA) by random sampling from specified distributions was conducted to determine the sensitivity of estimates to uncertainty in cost components. Costs are presented as means from the PSA simulations.

HIV TESTING ACROSS ROUNDS

In the first round:

• 126,206 individuals tested were calculated. Data on salaries, equipment, supplies, transport, and general administration were extracted from program records, and merged with outcome indicators from program data.

• Personnel costs were allocated to communities by number of CHPs teams in each community.

• Costs associated with HIV testing were allocated by number of tests conducted and other cost components were allocated by population covered.

• All equipment and training costs were adjusted to estimated equivalent annual costs over the lifetime of the study. All costs were adjusted for inflation and are presented as 2016 US$

The findings suggest that costs are sensitive to community-specific factors related to service delivery or population characteristics. The cost per person tested positive HIV-positive nearly doubled between rounds, which is partly explained by a reduction in the number of persons tested HIV-positive in the second round.

FINDINGS

COSTS ACROSS ROUNDS

The total cost of delivering the intervention in each round was around US$ 3.40m. The average cost per person in the population was US$ 7.6 across the two rounds (Table 1). The largest cost component of HBTC was personnel costs (63.53% in round 1 and 77.29% in round 2 (Figure 1)).

The cost per person tested was US$ 26.77, and the cost per person tested positive was US$ 367 in the first round. While the cost per person tested remained similar at around US$ 45.42 in round 2, the cost per person tested positive doubled to around US$ 91.88 (Table 1).

TABLE 1. Costs by rounds

<table>
<thead>
<tr>
<th>Cost</th>
<th>Round 1</th>
<th>Round 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total economic costs</td>
<td>US$ 3.27m</td>
<td>US$ 3.40m</td>
</tr>
<tr>
<td>Average cost per population</td>
<td>US$ 7.61</td>
<td>US$ 7.67</td>
</tr>
<tr>
<td>Cost per person tested</td>
<td>US$ 26.77</td>
<td>US$ 45.42</td>
</tr>
<tr>
<td>Cost per person tested positive</td>
<td>US$ 367.00</td>
<td>US$ 91.88</td>
</tr>
</tbody>
</table>

VARIATION ACROSS COMMUNITIES

The cost per person tested HIV-positive nearly doubled between rounds, which is partly explained by a reduction in the number of persons tested HIV-positive in the second round.

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REFERENCES
