Can a short-haul specimen referral system work efficiently to access point-of-care early infant diagnosis testing? Lessons from Lesotho and Zimbabwe.

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**BACKGROUND**

- Specimen referral systems can increase access to diagnostic services, but are also vulnerable to logistical and system efficiency challenges.
- A short-distance (<1 hour) specimen referral system was adopted to increase access to point-of-care (POC) early infant diagnosis (EID).
- We performed a site-level comparison of key clinical and service delivery outcomes observed within testing facilities (POC model) to those within referring facilities (referral model).

**RESULTS**

- In both POC and referral models, there were no significant differences in the percentage of results returned (100%), or in the proportion of HIV-infected infants initiated on treatment (100%) (Table 1).
- The median total TAT observed across sites using the referral model (5 days [2-7.5]) was only five days longer than among sites in the POC model (0 days [0-0]), with a significant difference in the distributions of TAT (Figure 1 and Table 1).
- Whereas both models experienced same-day specimen transportation, caregivers took significantly longer (2 days vs 0 days) to collect the result from facility in the referral model (Table 1).

**Table 1: Site-level comparison of key POC EID clinical and service performance indicators observed in facilities of POC and referral models**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>POC Model</th>
<th>Referral Model</th>
<th>p value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of facilities analyzed</td>
<td>50 facilities (6,297 specimens)</td>
<td>188 facilities (5,313 specimens)</td>
<td></td>
</tr>
<tr>
<td>Percentage of results returned to caregiver (medians [IQR])</td>
<td>100% [100-100]</td>
<td>100% [100-100]</td>
<td>p=0.778</td>
</tr>
<tr>
<td>Percentage of HIV-infected infants initiated on treatment (medians [IQR])</td>
<td>100% [93-100] (n=218)</td>
<td>100% [100-100] (n=180)</td>
<td>p=0.111</td>
</tr>
</tbody>
</table>

**POC Model**

- Blood collection to reception at testing site (including sample transportation) 0 days [0-0] 0 days [0-1] p=0.001
- Blood reception to processing at testing site 0 days [0-0] 0 days [0-0] p=0.081
- Processing to result sent to requesting unit 0 days [0-0] 0 days [0-0] p=0.001
- Result at requesting unit to result received by caregiver 0 days [0-0] 2 days [1-6] p=0.001
- Blood collection to result communicated to caregiver 0 days [0-0] 5 days [2-7.5] p=0.001

**Referral Model**

- Median TAT: 0 Days [IQR: 0-0]
- Median TAT: 4 Days [IQR: 1-8]

**CONCLUSIONS**

- A short-haul POC EID specimen referral system showed no significant differences in key clinical outcomes.
- An increment of only five days in the final TAT was observed in the referral model (mostly due to time required for caregivers to collect results), as compared to patients seen at POC testing sites.
- This model may be considered as a viable approach to increase access to POC EID.

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