**Background**

- Ethiopia is at a high risk of epidemic outbreaks of malaria due to climate and topography.
- As such, epidemic early detection and response form an important component of the national malaria control strategy.
- In order to improve the quality and timeliness of epidemic detection and aid in monitoring trends in malaria epidemic detection sites, studies have been established with President's Malaria Initiative Funding in the Oromia Region.
- The Sites consist of primary health care units (PHCUs) – Health centers and Health Posts, and there are 10 total sites in the Oromia region consisting of around 100 total health facilities.

**Methods**

- Ten Health Centers were included in the Epidemic detection system.
- Roll out at all facilities began in April of 2010.
- Roll out to HP level was initiated in April of 2011.
- Currently Health center data collection is in place at all sites in the system and at approximately 21 HPs with further roll out planned in the upcoming quarter.
- Individual patients data collection at health centers is conducted in four areas of Health centers:
  - Laboratory
  - Out patient Departments (Under Five and Adult)
- At Health Posts individual patient data is collected by Health Extension Workers
- Supportive supervisory visits and data collection is conducted bi-weekly in Primary sites and monthly in secondary sites.
- Data from HPs is collated by HEW supervisors and ACIPH supervisors.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Site</th>
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<tbody>
<tr>
<td>Opinion of patients with suspected malaria</td>
<td>Understanding testing needs</td>
</tr>
<tr>
<td>Percentage of patients who receive a diagnostic test for malaria</td>
<td>Measuring referral to clinical practice</td>
</tr>
<tr>
<td>Percentage of patients with a documented test for malaria</td>
<td>Estimating malaria burden and detection of epidemic</td>
</tr>
<tr>
<td>Species Distribution</td>
<td>Environmental conditions</td>
</tr>
<tr>
<td>Species Distribution of malaria cases</td>
<td>Epidemiologic data</td>
</tr>
<tr>
<td>Test Positivity Rate</td>
<td>Poliomyelitis and transmission estimation</td>
</tr>
</tbody>
</table>

**Table 1. Main indicators collected at epidemic detection sites**

**Results**

- While Health centers saw a vastly larger number of patients than Health Posts approximately half of all patients were seen at Health Posts.
- Sites varied enormously in levels of transmission and species distribution.
- Three epidemics were identified (two of P. falciparum malaria and one of P. vivax, additionally a small outbreak of RF cases was identified).

**Conclusions, Limitations and Next Steps**

- Test Positivity Rates varied highly by site and period of year.
- TPR also was a leading indicator of epidemic onset.
- Species distribution was nearly single species in some sites (Tulu Bolo and Dera (P. vivax) and Kersa (P. falciparum)).
- Low transmission sites tended to have unstable species distributions, where both species of parasite were present, while higher transmission areas showed seasonal fluctuation with P. falciparum more dominant during high transmission seasons and P. vivax more dominant during low transmission seasons.
- TPR at Health Posts was generally higher than at the corresponding HC.
- Figure 3. Trends in Test Positivity Rate and Species distribution over the surveillance period by site.

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