

Trends in Malaria at Epidemic Detection Sites in the Oromia Region, Ethiopia



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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 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 bio-weekly in Primary sites (5) and monthly in secondary sites (5)
- Data from HPs is collated by HEW supervisors and ACIPH supervisors weekly and reported monthly to USAID, ORHB and other stakeholders

Figure 1. Locations of Epidemic Detection Sites in the Oromia Region

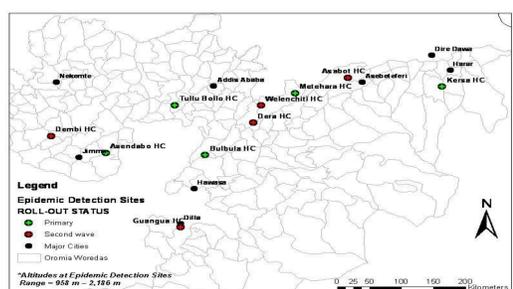


Table 1. Main indicators collected at epidemic detection sites

Indicator	Use
Fraction of patients with suspected malaria	Understanding testing needs
Fraction of patients who receive a diagnostic test for malaria	Measuring adherence to Clinical best practices
Fraction of patients testing positive for malaria	Estimating malaria burden and detection of epidemics
Test Positivity Rate	Epidemic detection
Species Distribution	Micro-planning and transmission estimation

Results

- While Health centers saw a vastly larger numbers 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)

Figure 2. Distribution of Patient and malaria case load between Health Centers and Health Posts

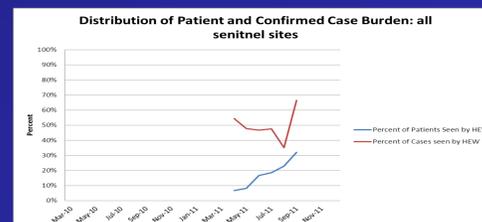
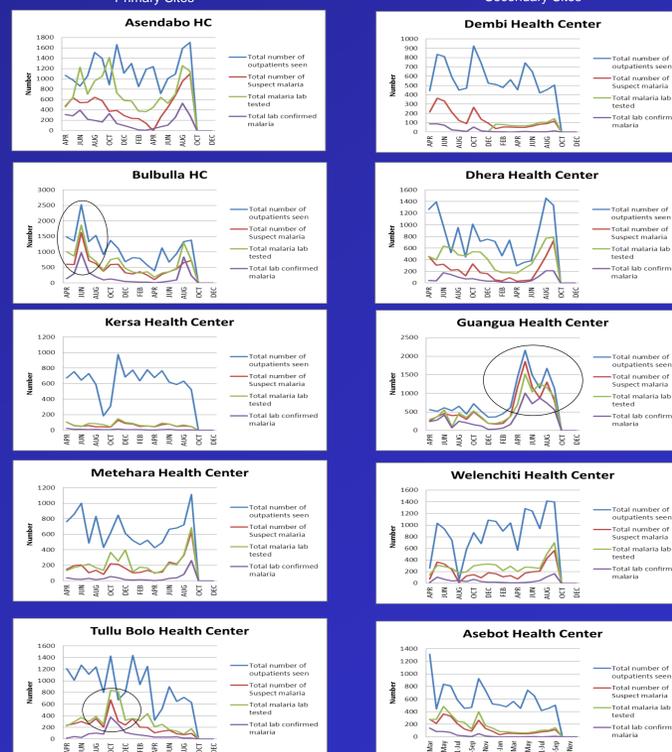
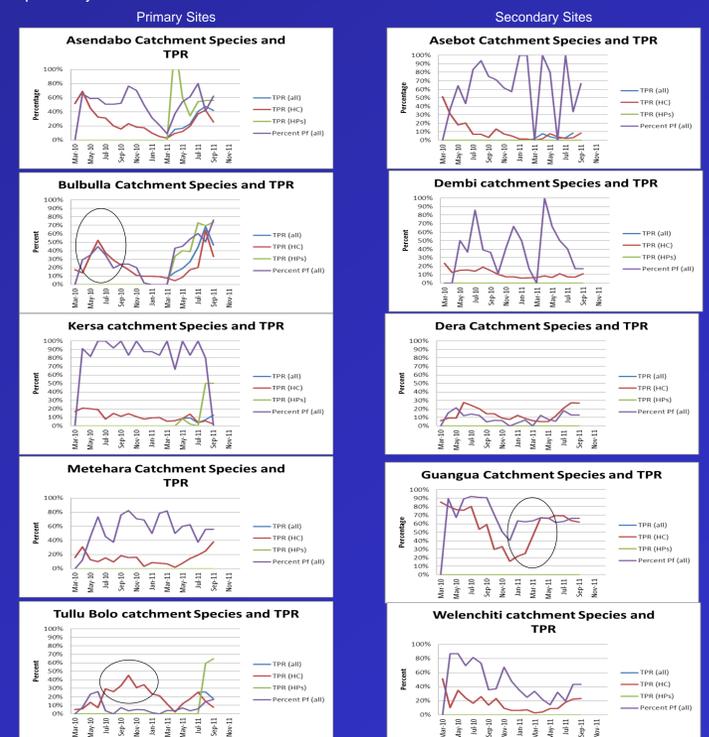


Figure 3. Trends at all health Centers since the start of surveillance



- 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 (Tullu 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



Conclusions, Limitations and Next Steps

- Epidemic detection can be rapidly and effectively conducted using data from health facilities
- Community level treatment is responsible for nearly half of the malaria case management burden and is therefore an important source of data for surveillance
- Test Positivity Rates at health posts may be biased by selective testing or reporting of patients
- Health Center OPDs may under report suspected OPD patients
- Evaluation of Monthly vs. Bi-weekly supervision should be conducted
- Roll out to all Health Posts in the Epidemic Detection PHCUs