Use of Health Extension Workers for rapid malaria surveillance and epidemic detection

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Background

Malaria is one of the most important public health problems in Ethiopia. It is estimated that 9 million malaria cases occur annually, where only 6 million are treated in health facilities. Of these cases, about 600,000 are laboratory-confirmed. The last major nationwide malaria epidemic was in 2003, where there were an estimated 16 million cases.

Many malaria cases occur in communities with limited access to Primary care facilities. Recently the development of a large Health Extension Workers (HEW) program (~30,000) HEWs has contributed to expanding health system access and provides opportunities for collection of malaria incidence information at the community level in much of the country. HEWs can administer rapid diagnostic tests (RDTs), diagnose, and treat malaria under the new system.

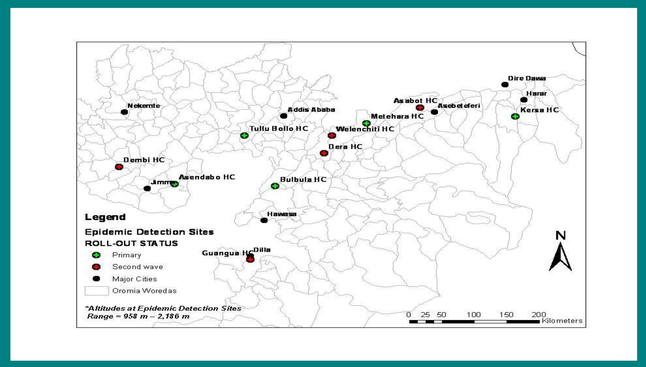
It may be possible to use the HEW system to better understand the distribution of malaria, to track trends and to identify epidemics at earlier stages in their development than by using only surveillance based at Health Center and higher levels.

HEW using SMS to transmit malaria data

Methods

- 10 Epidemic Detection and sentinel surveillance sites centered at the health center level were identified, trained and equipped to extensively monitor trends in surveillance.
- In five sites (eventually a full roll out is planned) expansion to the Health Post level has been conducted with workers trained on the collection of M & E data and formal reporting via both paper methods through HEW supervisors and rapid reporting through SMS technology.

Figure 2 - Epidemic Detection Sites in Oromia Region

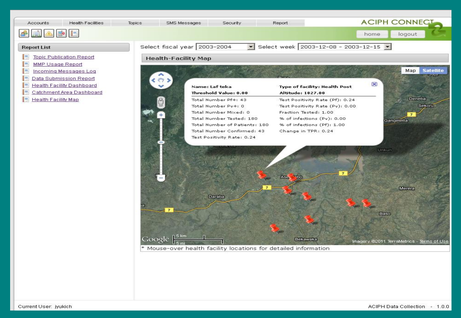


HEW Collect individual patient records in a testing and treatment register including:

- Age, Sex, Pregnancy Status
- Fever History
- Location of residence
- Patients tested with a Pf/Pv malaria RDT
- Diagnosis of malaria by species
- Treatment with ACT or CQ

- HEWs report regularly (minimum monthly - ideally weekly) through HEW supervisors
- HEWs rapidly report aggregate information through SMS system on a weekly basis.
- Data is then analyzed for trends in various reportable indicators including Test positivity rates and overall trends in cases seen. Data are compared to past levels of malaria cases by location to identify early increases in cases which might be indicative of epidemic increases.
- Regular supervisory visits (monthly and bi-weekly are conducted with the HEW supervisor, and HEW supervisor makes weekly visits to all Health Posts
- Supervisory visits provide opportunities to discuss trends in malaria in the area as well as to provide feedback on Monitoring problems and to document needs at the HEW or facility level including stock outs of drugs or other supplies.

Figure 3 – Map of Health Posts and Health Centers in Asendabo catchment area showing data reported through SMS system and trends in malaria at Laf teka HP.



Results from primary sites

- Data can be collected more rapidly from all sites and be used to produce a nationally available weekly picture of cases at facilities for different levels of aggregation.
- HEW see about 50% of malaria cases, however only see about 30% of patients currently

Figure 4. Distribution of Case burden between Health centers and Health Posts at all sites with HP data collection

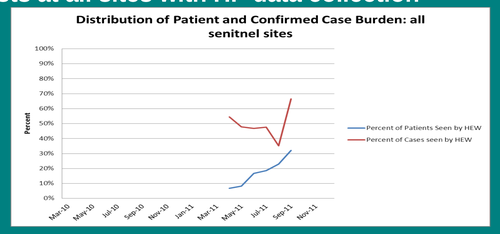
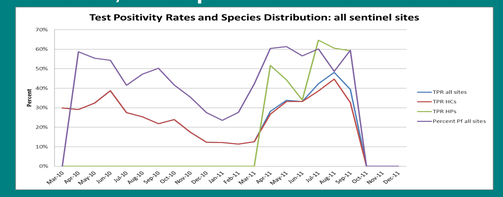
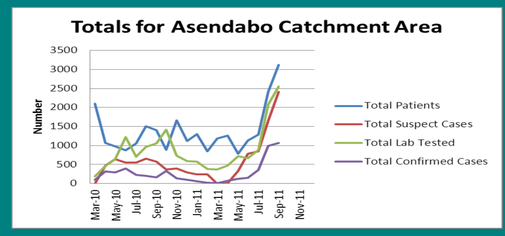


Figure 5: Trends in TPR, and species distribution across all sites



- Test Positivity Rate fluctuates seasonally at facilities rising in relation to the main malaria transmission seasons.
- Test Positivity Rates at Health Posts (where RDTs) are mainly used have remained consistently higher than those at Health centers (where microscopy is the main form of diagnosis.
- Test Positivity Rate appears to be a leading indicator of epidemics in this context, however, it is also difficult to quantify over time as is it highly dependent on clinicians' testing practices.

Figure 6: Trends since inception of surveillance in Asendabo catchment area



- Incorporating HEWs means that confirmed case levels and other indicators can now be monitored with a comprehensive view of the health system in an epidemic detection site.
- Changes in surveillance and epidemic system data collection methods over time present a risk to calibrating accurate epidemic detection thresholds. While Asendabo is experiencing growing case numbers some of the recent increase is related to addition of HEW reporting

Conclusions

- Thus far there are 10 operating sites that provide data on epidemics, distribution of species, and geographic distribution of the burden, as well as other case management and health system data. Five of these sites currently have rolled out SMS and Health Post based data collection.
- SMS systems can be used to quickly share and transfer information on malaria diagnosis and treatment from the community level.
- Test Positivity Rates using RDTs at HPs have remained much higher than TPR at the Health Center Level
- Approximately half of the malaria burden in the public system in Oromia Region is treated at the Health Post level.
- Micro-planning for malaria could potentially be enhanced by better understanding the burden of disease and case management needs at the community level.
- SMS technology at the HP level could also be used to track drug stock levels and ensure continuous supply of commodities
- Health Post surveillance using SMS technology should be expanded to all epidemic sites and to other areas outside of Oromia Region. Long term reliable data collection is necessary for accurate threshold development

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