Malaria Epidemic Detection Initiative in Oromia, Ethiopia
Newsletter

A partnership between Addis Continental Institute of Public Health , Tulane University, the Oromia Regional Health Bureau, MEASURE Evaluation &the Uniteed States Agency for International Development

Highlights:

- Health post data collection and analysis initiated

- Results of lab quality control communicated to Sites and stakeholders

- Retrospective lab data have been organized

- Increasing test positivity rates in Tulu Bolo and Metehara

Inside this issue:

Expansion of the surveillance process to the HP level: Malaria epidemic detection

In order to improve the surveillance process and make malaria epidemic detection more complete at the community level, expansion of the surveillance down to the Health Post (HP) level is necessary. Based on a baseline assessment, seven (7) HPs (Goroseden, Waktola, Lafteka, Seyoadami, Burka–Asendabo, Gudeta bula and Lelisa bula) in the catchment area of Asendabo Health Center were selected as primary sites for the expansion of data collection and reporting from the HPs . After the development of data collection tools and protocols, training was given on data collection tools for fourteen Health Extension Workers (HEW) and one Health extension supervisor on the initiation of surveillance and epidemic detection methods. Two main issues

Training of health workers in the Asendabo Catchment area

were raised by the HEWs during training which may pose challenges to the provision of high quality surveillance and epidemic detection, namely severe shortages of RDTs in most of the HPs and frequent stock outs of Artemisin Combination Therapy (ACT). Mr.Tariku Tadesse, deputy head of the woreda has promised to solve these problems to faciliate this initiative.

Data collection at the seven HPs started in September 2010. Early data analysis showed that test positivity rates at the Health posts were much higher than observed at Asendabo Health Center. The case mix at health posts was, however, similar to that at the Health center for the month of September.

Health Post level data collection allows for the refinement of surveillance data to smaller spatial scales, which is important for identifying microclusters of malaria infection and with planned expansion of

Short Message Service technology to surveillance sites in the near future, both the speed and accuracy of early epidemic detection should be improved.

Five years retrospective lab data collection:

Collection of weekly retrospective case data from the past five years of laboratory records (1997 Hamle to 2002 Sene E.C.) began at the five primary epidemic detection sites. The purpose of this data collection is to set threshold values for malaria epidemic detection at each site. In Ethiopia, the standard method for epidemic monitoring is the use of a modified World Health Organization Method which uses historical weekly case data to establish the 3rd Quintile threshold for epidemic confirmed case numbers. The project will utilize this method as well as other epidemic detection algorithms including the C-SUM method, Cullen Method and a novel method developed by the presidents ma-

Results of lab quality control at malaria epidemic detection sites.

laria initiative to attempt to find the most sensitive and specific method for epidemic detection for the surveillance sites and by proxy, other sites in the region.

High quality laboratory based diagnosis is absolutely critical to malaria treatment and surveillance, especially in low transmission areas, like most of the Oromia region of Ethiopia. Given this the Epidemic detection project initiated a lab quality control system as one of the projects routine activities. The lab quality control process includes the storage of all malaria blood slides at each health facility and blinded rechecking of randomly selected positive and negative blood films based on the national protocol for the country. These slides are cross-checked by a trained and experienced malaria microscopist at the Addis Continental Institute of Public Health. Quarterly (May to Au-

gust) lab quality control results for all malaria epidemic detection sites have been produced for the first time this month.

Analysis of the results are shown in Table 1. Significant variation between sites was apparent. Agreement between the blinded rechecking and the original facility result is indicative of good quality microcopy results, disagreement between the two readings indicates problems. Agreement between the two readings at some facilities was very low, only 53% and 68% at Guangua and Kersa HCs, respectively. Further investigations at Kersa HC was conducted which indicated technical problems with the microscope as the main factor leading to poor results. Further investigations at Guangua are planned. Constant monitoring of lab quality can help not only to ensure malaria surveillance data are accurate but also ensure that patients receive appropriate treatment at the fa-

Table 1 Results of lab quality control (May — August 2010) Percentage agreement between facility results and blinded rechecking

Health Center Name	Overall Agreement	Agreement by Facility Result	
		Positive	Negative
Asendabo	83	60	90
Bulbula	91	87	95
Kersa	68	62	13
Metehara	84	78	91
Tulubolo	95	100	89
Asebot	76	60	100
Dhera	100	100	100
Dembi	100	100	100
Guangua	53	19	93
Wolenchiti	75	62	100
All	**82**		

Selected Results from Primary Sites

cility. Results of the quality assessment were discussed at sites during supervision visits.

Figure 1 Illustrates the trend in confirmed malaria cases over the period since the inception of sentinel surveillance data collection. During the most recent quarter (July to September 2010) malaria cases declined or remained stable across all five primary sites with the exception of Tulubolo which showed increases in August . There had been significant increases in May and June especially in Bulbula; reductions have been ovbserved thereafter.
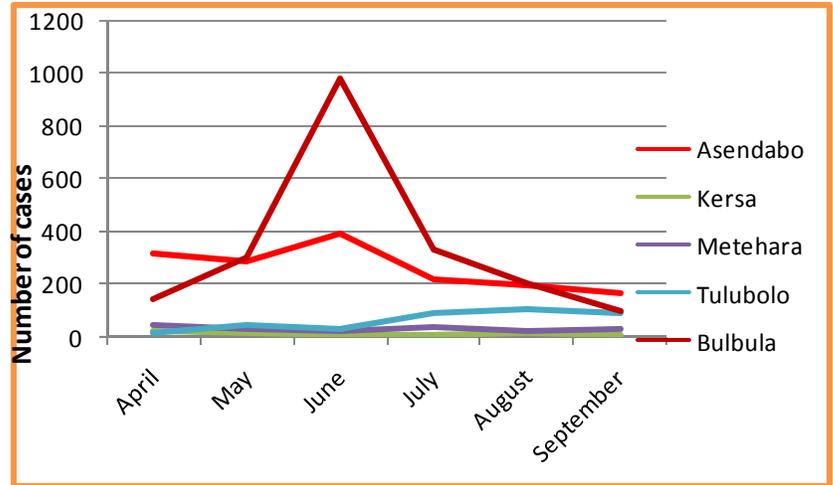
Figure 2 illustrates the percent of *Plasmodium falciparum* (P.f.) malaria over the past three months (July, August and September). The P.f percentage in Kersa is nearly 100% across the three months. However ,in Kersa the maximum number of total confirmed malaria cases was not more than 12. The other extreme is Tulubolo where almost all the cases were *Plasmodium vivax*. In Metehara ,in September significant increase in P.f has been recorded. In Asendabo and Bulbula the percentage remains to be relatively consistent in that it was below 50%. The two extremes (Tulu bolo and Kersa are concerns for further investigation.

Figure 1 Trend in confirmed malaria cases at five primary sites since the inception of sentinel surveillance

Figure 2. Percent of confirmed cases due to Plasmodium falciparum over the past three months at five primary sites
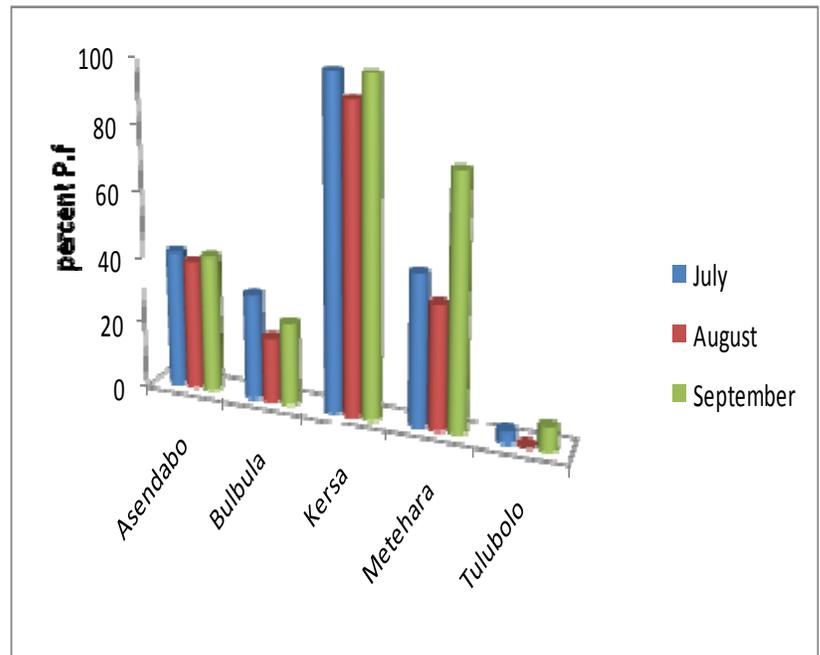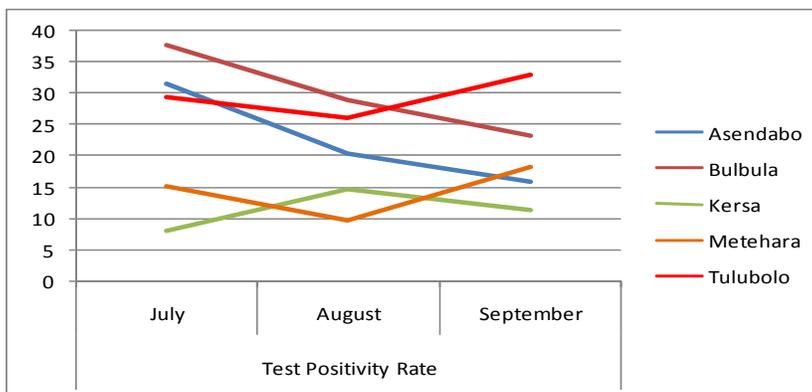
Figure 3 Illustrates trends in the test positivity rate and the five primary sentinel sites through the past quarter (July-September 2010) Rates have fallen or remained stable at three sites (Bulbula, Asendabo, and Kersa). While at the remaining two sites, Tulu bolo and Metehara, there is an increasing trend. Test positivity rates tend to increase near the beginning of epidemics of malaria. Changes in tTest positivity rates could also be indicators of changes in laboratory performance or switches in diagnostics methods. Microscopy problems at Tulu Bolo led to the use of RDTs extensively during this period, however, the lab quality control results from these sites indicate that results at the facilities with increasing test positivity rates are likely to be valid. Particular concern and preparation for potential upcoming epidemics should be focused on Tulu Bolo and Metehara. Metahara has also experienced significant flooding during this period leading to concerns that remaining stagnant water could lead to increased vector breeding site availability and increased transmission potential in the area.

Overall most sites experienced difficulty in maintaining accurate OPD registration forms during the period, leading to under estimates of suspected malaria cases. Laboratory records were consistently well kept and thus numbers of confirmed cases are believed to be accurate, while overall patient attendance at facilities is generally underestimated.

Figure 3. Malaria Test Positivity Rates by Site since the inception of sentinel surveillance

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