



Center for National Health
Development in Ethiopia
THE EARTH INSTITUTE AT COLUMBIA UNIVERSITY

***Assessment of Malaria Epidemics in
Laelay Adiabo and Raya Azebo woredas
Tigray, Ethiopia***

1st – 5th August, 2005

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A rapid assessment of the malaria situation in Tigray was undertaken by the Center for National Health Development in Ethiopian (CNHDE). The assessment was done in response to the request made by the Disease Prevention and Control Department of the Federal Ministry of Health. The investigation was undertaken in close consultation with the regional health bureau. A detailed briefing of the situation was provided to the expert from the CNHDE by the regional health bureau head, his deputy and the malaria control department. Then a field visits was made to the western (Laelay Adiabo woreda) and southern (Raya Azebo) parts of the region. The expert from the CNHDE was accompanied by the head of the regional malaria control department. At the end of the mission, findings of the assessment were presented to the heads of the regional health bureau and the malaria control department staff. In depth discussion was made on the findings, recommendations and on the way forward. The commitment of the regional health bureau and the regional government to fight the epidemics and prevent any further spread is exemplary. The regional government has now allocated more than two million birr to strengthen the epidemic prevention operation.

The following is a brief report of the mission by the CNHDE expert.

LAELAY ADIABO WOREDA

Places Visited:

- Woreda Health Office
- Hadegti Heath Post
- Hadegti Village

Observations:

- Transmission started in April/May
- Epidemic was detected as early as May
- Woreda health office records show that there were 26 deaths so far from one of the Kebeles (Hadegti) affected by the outbreak
- 5 other deaths from were also reported from another kebele, Hamlo; not visited in this trip
- Epidemics is still affecting many people in Hadegti; does not seem to be declining
- Few people visit the clinic in Kebele for medical care; however several sick people were observed when house at the village were visited; the reason cited was that the treatment at the clinic was not different from what they get from the CHW and both were not helping
- In one house there was no hand to prepare a house for spray; all household members were sick
- Several *Anopheles* mosquito larvae were recovered from micro-ponds at the backyard of the houses
- Considering the pattern of the rains, the main transmission has yet to come starting end of August and this coupled with high number of parasite carriers in the population it is highly likely that the epidemics could get more sever unless appropriate measures are undertaken timely
- Very encouraging commitment from woreda offices
- Hardworking and committed staff at the woreda health office

- The epidemics is now perceived a top priority by the DHO, Capacity Building and the woreda administration
- Spray started the day the visit was made at the woreda; had the chance to see the organization of the operation and actual spray
- Despite some technical problems with the operation (inadequate training of spray-men) it is a good start and would be very helpful in the fight against the epidemic and its further spread
- According to the WHO records, epidemics appear to be localized in 2 or 3 Tabias and this will be manageable by the woreda staff

Possible cause of the epidemic:

- Intermittent stream flow and formation of pools for mosquito breeding during the dry season coupled with probably higher temperature than usual. Higher temperatures are important as the area is a semi highland
- Several ponds inside the village providing additional ground for vector breeding

Problems:

- Delay in taking preventive measures. For example, spray operation would have been appropriate as soon as the epidemics was detected in June
- The absence of effective antimalarial drugs; they were using sulfadoxine pyremethamine and quinine and this was not helpful in either curing the sick nor preventing the spread of the epidemics
- Shortage in operational fund for public education and preventive action
- The habit of using bed net was inadequate
- A large number of ponds inside villages were serving as a very good ground for vector breeding
- Poor treatment seeking behavior of the population played a role for the number of deaths

Recommendations:

- The spray operation underway is a good start
- The region is advised to send more Artemeter Lumefantrine (AL) and rapid diagnostic kit (RDT) to the area; 250 adult does of AL has reached the woreda at the time of the teams visit
- It is very important to devise a plan for effective use of AL and the and the use of RDTs
- Mobilize the community in preventive action; bed net use, environmental management, treatment seeking
- Spread the word that there is a better treatment now available at the village clinic or take the new drug to the sick at home; house to house visit
- To improve adherence and reduce misuse it is would good to introduce supervised treatment; twice or once a day, wherever possible

RAYA AZEBO WOREDA

Places Visited

- Woreda Health Office
- Mekoni Health Center
- Tsigu and Abay Mekoni kushets/villages

Observations:

- Transmission started in April/May after the Belg (small) rains
- Epidemic was detected late in June

- According to the health center records there were 973 inpatients in July at Mekoni health center.
- No data was available on current deaths, previous data show that there were a total of 21 deaths from the woreda
- Epidemics still affecting many people in several Tabias/Kebeles

Malaria cases at Mekoni Health Center (Last three days before the visit)

Date	Examined	Malaria	% positive
<i>July 25</i>	303	188	62.0
<i>July 26</i>	236	147	62.3
<i>July 27</i>	250	170	68.0

- More than 200 febrile cases visit the health center at Mokoni every day; more than 150 are malaria positive
- Several Children were admitted the day of the visit
- Many sick people were observed in the villages visited
- The potential for sever form of epidemics in the coming months is very high
- It was hoped that heavy rains in July-August would help lower down the outbreak. However, the way the rains are coming does not appear to help in interrupting transmission at this stage; would probably worsen the problem
- There are 7 clinics and 9 health posts (all staffed by HEWs) and this a very good coverage
- There appears to be a strong community organization and a functional village health workers
- Epidemics appear to be localized to tabias that received the belg and subsequent rains
- Several *Anopheles* mosquito larvae and pupae were collected from the micro-ponds often very close to the houses
- Micro-ponds with plastic lining were having much fewer or no larvae compared to the earth lined shallow ponds
- Probably the absence of vegetation and a large number of other organisms at the edge of these ponds is a deterrent to mosquito larvae

Possible factors for the epidemic:

- Water collections and higher humidity following the belg rain
- The presence of several ponds inside the village; very close to houses
- Problems with ITN use; coverage, re-treatment, awareness

Problems:

- Delay in taking preventive measures; for example, spray/re-treatment of nets before the belg rains would have helped a lot.
- Commitment from the woreda office to fight the epidemics was perceived to be not very strong.
- Health center staffs appear to be overwhelmed and exhausted.
- No sense of urgency was observed among the woreda health staff.
- Though it was decided that indoor residual spraying of houses has to be done to arrest the epidemic and the region has transferred the required chemicals the operation is very much delayed and the woreda has yet to start training and planning.

- Shortage in operational fund for public education and preventive action was cited by the woreda health office as a problem.
- Inadequate awareness about bed nets and very poor utilization by the population.
- Though there was no shortage of the new drug AL in the woreda, several problems of misuse were observed; many people fail to take the required dose.

Recommendations:

- Spray epidemic affected (hot spot) areas as soon as possible
- Transfer more AL and RDT to affected areas
- Devise a plan for rational and economical use of AL and the RDTs
- Mobilize the community in preventive action; bed net use, environmental management, treatment seeking
- Involve the community health workers in health education (emphasis the importance of full dose), spray etc.

After looking into several options and discussion with the woreda health office on how to get effective treatment into the community it was agreed that:

- Supervised treatment should start at all health facilities; including the HPs
- Use more RDT to target positive cases only
- Train the HEWs on RDT and treatment with AL, to take AL treatment closer to the community
- Introduce supervised treatment; twice or once a day, depending on local conditions
- Mobilize health professionals from other areas to assist with the case management
- If possible assign experienced staff in epidemic control to coordinate operation
- It could be too late for this year, but it is very important that chemical larval control is introduced to treat the micro-ponds; very appropriate for the micro-ponds
- This can be done at no/very little operational cost by involving the community health workers
- The only requirement is making a spray pump and Temephos (Abate) chemical available at the community during the mosquito breeding season
- The FMOH should take the lead to re-introduce Abate chemical in larval control and more importantly should look for funds to buy enough number of spray pumps to replace the old ones used for IRS as well as additional pumps that can be used for chemical larval control. Re-programming Global Fund grants could be one option.
- This could be a means of reconciling the use of the micro-ponds for food security by lessening their effect on health

We had a stopover in Adua and an inquiry about Mereb Leke and Werie Leke woredas; though it hard to be predict about what would happen in September without proper assessment, the situation in these areas appear to be normal at this stage; providing the region with the opportunity to focus on the areas having problems.

General:

- The areas visited are severely affected by malaria epidemics and without much signs of declining but on the contrary the situation is indicative that it might progress into sever form unless preventive actions are taken timely
- It is obvious that we have to use the antimalarials at hand (AL in particular) rationally; but it is also important that we use them now aggressively to solve the problem at hand
- The FMOH should urgently transfer more AL now because Tigray region, and may be other regions too, are having a problem now, with. Prompt measures at this stage would have a very positive impact to minimize damage in the upcoming main transmission

- season. There is no need to hold reserve at any level (central or regional) while it is still far short of the requirement. The same is true with the insecticides.
- In the long term, stratify areas for bed net use and spray; try to achieve very high coverage in target areas with the ITNs at hand and avoid mixing both unless there is an epidemic in which case IRS could be needed to get it under control.
 - ITNs are recommended in areas where transmission is intense; such areas are primarily located in the far western part of the region; some pockets also exist in Laelay Adiabo and Asgede Tsimbla
 - Wherever the epidemic occurs, well planned and timely executed indoor residual operation is the best way of preventing and/or controlling epidemics
 - Even in the long run, I don't believe that ITNs are the best way of malaria prevention in the southern lowlands of Tigray, unless we are ready to work extra hard to create adequate awareness on the benefits of ITNs and that can be translated into practice; a higher utilization rate.
 - It is very important to collect some simple and vital information to make evidence based decisions:
 - Acceptability of bed nets
 - Insecticide resistance
 - The role of the micro-ponds in malaria transmission and their simple modification to deter larval breeding (the assumption that disturbing ponds a few minutes a day would deter larval growth is unsubstantiated; but it was observed to be widely practiced in Raya Azebo and has stop)
 - This is a very challenging time for malaria case management practice in terms of the antimalarial drugs available:
 - SP has failed
 - Quinine is not a good choice
 - AL is:
 - Very expensive
 - In short supply at this stage; leakage could be a problem
 - Not easily available in the global market
 - Very short shelf life; two years
 - Long regimen; adherence seems to pose a problem

Therefore:

(1) our case management and drug dispensing practice might need to take all these into consideration (2) technical and administrative issues of this drug are going to be a continuous challenge that require careful planning (2) probably it is time to look for other alternatives.

- It is my belief that ITNs are not probably appropriate means of malaria intervention given the epidemiology of malaria in many parts of this country which is characterized with such very seasonal peaks and unpredictable periodic epidemics. Therefore it is advisable - to restrict ITN use to areas where the transmission is considered to be very intense and rely on IRS in all other areas -or- work extra hard to increase the awareness of the population on the use and benefits of ITNs before their distribution.