



What is the risk of Malaria and Dengue after the tsunami disaster?

(A conversation among experts on the Internet)

Aravinda de Silva, Assistant Professor, University of North Carolina, states that a lot about increased transmission of vector-borne diseases after the tsunami have been heard but he is not sure whether people in Sri Lanka have to worry about increased transmission. Dengue transmission is very intense even under normal conditions and the majority of people living in the urbanized areas in the west and south west have been repeatedly exposed to infection and developed immunity. The main vector of dengue (*Aedes aegypti*), thrives in urban areas and mainly breeds in artificial containers with relatively clean fresh water. Puddles left by the sea and salt water contaminated pools will not create additional breeding sites for dengue vectors.

Where the malaria situation is concerned it is rare in the coastal areas of the Southwest and endemic in the Southern and Eastern Coast. Dr. Felix Amerasinghe and others have found that *Anopheles culicifacies*, the main vector in Sri Lanka, breeds mostly in fresh water pools formed on river and stream beds. If river and stream flows have been affected by the tsunami then this has to be taken into consideration. More malaria cases may be seen because of non-immune people being displaced and moving into disease endemic areas.

He says that the past year (2004) there was a very large island wide outbreak of DHF with nearly 300 deaths and so many people had been hospitalized for suspected DHF. Therefore there is a tendency of disease and death due to vector-borne disease, not because of increased transmission, but because of the breakdown of the health care infrastructure. In the current environment if there is another DHF epidemic, many more people will die because the health care system in the coastal areas is in complete disarray and DHF cases may not be recognized and treated appropriately.

Olivier Briet, attached to the International Water Management Institute (IWMI) says, Chief vector of dengue (*Aedes Aegypti* / *Ae. Albopictus*) is NOT very salt tolerant. With the evaporation, the salt concentration in the puddles of seawater will be too high to serve as breeding sites for dengue vectors therefore these are of no consequence for dengue or malaria in Sri Lanka.

Because there are other kinds mosquitoes that breed in high saline water he recommends to focus control on cleaning up container like detritus that could hold fresh water (from rain), as *Aedes aegypti* is a notorious container breeder (tin cans, coconut shells, tires, etc).

Flemming Konradsen, Environmental Health Biologist, (IWMI) and Dr. Priyani Amerasinghe, Parasitologist and Head, Department of Molecular Biology and Biotechnology, Faculty of Science, University of Peradeniya, say that any container-like rubbish could act as breeding site for *Ae. aegypti* and *Ae. albopictus* (which is present in SL but not yet locally established as a dengue vector yet elsewhere). Apparently the coasts are littered with small (500 ml) water bottles for emergency relief, which could serve as dengue vector

breeding sites (the small bottle neck will not prevent *Aedes* mosquitoes to oviposit, as it originally breeds in tree holes).

The salt water breeding *Anopheles subpictus* is not a good malaria vector. *An. culicifacies* is not salt water breeding. Because Malaria has been very low last year we expect a very small sub-patent infection reservoir.

Most refugee camps are apparently still in coastal zones (little displacement). Of course a breakdown of the public health system could be important.

Dr. Priyani thinks that it is a good idea to mobilize a surveillance team (for vector-borne diseases) for each of the Districts to assess the current situation and says that the Anti Malaria Campaign (AMC) has the personnel to handle such activities.

Gawrie Hapugalle, Consultant Community Physician, National Malaria Control Programme in Sri Lanka says, that for the past two weeks she has been travelling extensively to South (Hambanthota, Matara, Galle) and North east of Sri Lanka (Batticaloa, Trincomalee, Mullaitivu) and the damage done by the tsunami disaster is enormous, particularly in Hambantota and Batticaloa which are traditionally malarious areas.

Where vector borne diseases are concerned, *An. subpictus* breeds in salt water and is not our primary vector. Batticaloa district had floods for the last 2 days and it has disrupted the relief work due to heavy rains. Now the discarded receptacles such as tires, plastic water bottles, pots and pans are filled with rain water and will be good breeding sites for *Ae.egypti*. Most of the refugee camps are along the coastal belt and are in urban areas. So there is a threat of dengue outbreaks in affected districts. We are trying our best to clean the environment and have already started space spraying with technical malathion around refugee camps.

Regarding malaria - there are refugee camps in traditionally malarious areas especially in Batticaloa and Trincomalee. Before the disaster there was a big parasite reservoir in these two districts. From the Batticaloa district information on cases of malaria are getting reported daily but due to transport disruption malaria control staff find it difficult to assess to these areas. We are afraid that once the refugees move to the interior of the district, these people may spread the disease as vector is abundance during this period.

During the visit to these affected areas several cases of viral hepatitis and diarrhea were noticed.

In response to Dr. Priyani's suggestion to mobilize a surveillance team (for vector-borne diseases) for each of the Districts to assess the current situation, Dr. Gawrie says that the AMC has already established district disaster teams with NGOs, Health personnel and other relevant authorities. Regional malaria surveillance already has a system, which gets data daily from respective Regional malaria officers.