# Mekong RBM IEC Project News

***September 2005***

There are many scientists working on different approaches to malaria prevention and control, for example insecticides for bednet impregnation, artemisinine-based combination therapy for malaria treatment and rapid diagnostic test. Mr Xu Jianwei, Associate Professor of Epidemiology and Deputy Head of Malaria Division of Yunnan Institute of Parasitic Diseases has shared his thoughts about alternative approaches for malaria prevention.

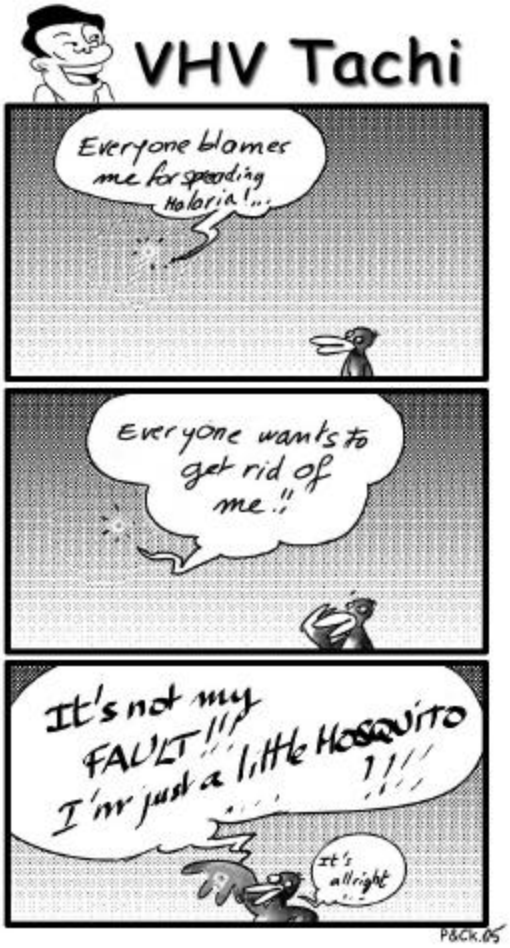
Alternative methods for preventing malaria and other mosquito-borne diseases:
*by Xu Jianwei*

Human and vector behaviours are important determining factors in malaria transmission. Human outdoor sleeping behaviors and over-night stays in field shacks in areas containing exophage vectors such as *Anopheles Dirus* and going to bed after vector biting peak, significantly increase malarial infection. The time and sites of human activities are also related to malaria infection, for example, the farming season, when people work and sleep in fields coincides with the high vector density season. Despite a lack of conclusive evidence showing that ITN usage leads to vector behaviour change, it has been observed that *An. minimus* became more exophily and exophage in Yunnan and Thailand following residual spraying with insecticides. These observations challenge conventional thinking and suggest that alternative methods of malaria prevention could be useful.

Two kinds of malaria prevention strategies are available. One is to target mosquitoes, reducing exposure to mosquito bites by adopting proper behaviours and controlling mosquitoes; the other is to target malaria parasites, such as the use of chemoprophlaxis after infection. Targeting the mosquitoes is an active strategy whereas chemoprophlaxis is a passive approach, and has some side effects. Despite a lot of research, such as developing different odours to attract mosquitoes, changing mosquito behaviour seems much more difficult than changing human behaviour, so approaches such as Information Education and Communication (IEC) and Behaviour Change Communication (BCC) could be effective strategies.

Among different populations in different geographical settings, people are using various methods against mosquito nuisance despite not knowing that some diseases are caused by mosquitoes. Everyone knows that artemisinin comes from a plant, *Artemisia annua*, but some people might not know that soup made from *Artemisia annua* has been

traditionally used to treat fever diseases in some populations in Yunnan, China. Moreover, *Artemisia annua* has been used to prevent mosquito nuisance. In 2002-2003, YIPD collaborated with London School of Hygiene and Tropical Medicine to investigate the use of botanic repellents in different ethnic groups. The results of the survey found that 20 plants are used as repellents by 23 ethnic groups and *Artemisia annua* is the most popular one. One common method is burning *Artemisia annua* to produce mosquito repelling smoke in the evenings. In the survey, some of the Lahu and the Wa people said that they rub leaves of *Artemisia annua L,* and then put its juice on their skin to prevent mosquito biting when they go to forests, especially bamboo forests, in the daytime. As everyone knows, some Aedes mosquitoes are vectors of dengue fever and bite in the daytime. In fact, I have had this kind of experience too. In early 1989 - 1990, I worked as an entomology technician when I had just graduated from the Biology Department. I went to bamboo forests to collect mosquitoes. I put plant juice on my skin against Aedes and itch. The plant juice partly repelled mosquitoes and soothe itches. Qingliangyou is a product produced by a pharmaceutical manufacturer in China to relieve itching, and some people also use it as a mosquito repellent. They say it works well.




Mosquito coils are used more and more in China because people think that sleeping in a bednet is too hot, and think that hanging bednets in their modern houses looks unattractive. In Yunnan, China, Japanese encephalitis is a public health problem too. Its vector is Culex. If we can prevent mosquito bites, we can control both malaria and Japanese encephalitis.

These ideas are as yet unconfirmed by careful research. I am presenting them in order to demonstrate that there are a variety of alternative approaches to control of mosquito-borne diseases, and some of them deserve further investigation, not just in terms of their effectiveness, but also in terms of their cost and the preferences of the target groups. Even effective approaches, if

they are too expensive or are unacceptable to people, are of little use.

If you have any feedback or comments, you can write to Mr Xu Jianwei at xjw426@163.com and cc to Pricha Petlueng at petluengp@lao.wpro.who.int

Here are two interesting articles related to malaria control programmes that we would like to share with you.

Combination therapy based on artemisinins, which forms the basis of a newer class of antimalarial drugs, has been advocated recently to improve efficacy and limit the spread of resistance. But these drugs may not be the ideal treatment for uncomplicated malaria, especially in highly endemic areas in Africa. From BMJ BMJ 2005;331:256 (30 July), article by Scott Gottlieb http://bmj.bmjjournals.com/cgi/content/full/331/7511/256-f?maxtoshow=&HITS=10&hits=10&RESULTFORMAT=&fulltext=malaria&searchid=1122627430318_1331&stored_search=&FIRSTINDEX=0&volume=331&issue=7511

ITN It is possible to educate individuals about malaria and to implement net impregnation services with limited resources. Greater accessibility to net-impregnation services is necessary but not sufficient to increase ITN use...
http://www.malariajournal.com/content/pdf/1475-2875-4-35.pdf

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