

## **ADDING TO THE MIX**

Probably at no time in history has malaria been so prominently at the forefront of world consciousness. In defiance of the triumphant march of medicine and science in many important areas, this pernicious disease has mushroomed to nearly unmanageable proportions in many venues and has surprisingly arisen in venues where it had never been seen before. According to some estimates, over half of the population of Sub-Saharan Africa may be transporting one or more of the four malaria protozoans in their blood – although many of them never exhibit symptoms associated with the disease.<sup>1</sup> If the estimates about the number of malaria parasite “carriers” is accurate there is an almost limitless resource pool of “attractive” parasite-infected blood<sup>2</sup> for the *Anopheles gambiae* mosquito to draw from to infect previously-untainted victims.

In response, health organizations throughout the world are in high gear attempting to “stem the tide” of this insect-borne epidemic including undertaking extensive research to find an effective, affordable and safe anti-malaria vaccine. However, in the best case, this will be some time in coming and in the interim the two most prominent weapons deployed against malaria are insecticide treated nets (ITN's/LLIN's) and interior insecticide spraying (IRS).

In both instances, there are heartening results in terms of reduction of the incidence of the disease and children's deaths. However, both of these resources working in concert cannot account for protecting more than a minority of the vulnerable population from infection.

### A New Methodology

It is typical of human nature to be skeptical about new and different ways of doing things. This makes it difficult for a new methodology to gain acceptance in the face of long-held reliance on existing methodologies\*, especially if they demonstrate benefit. This is the hurdle that the TPI mosquito-avoidant patches has had to overcome even though they have shown their ability to provide the full time “go anywhere/do anything” protection against mosquito-biting that is so clearly needed.

Many adults and children, accustomed to applying mosquito-repellant lotions to cover every square centimeter of exposed skin have difficulty accepting the fact that a small (less than five cm. square) patch can protect the entire body. Consistent with this, children in a Ghanaian secondary school – observing that a classmate wearing a patch seemed invulnerable to mosquito attacks – were convinced that he was being protected by a form of voodoo.

Old habits die hard. Nevertheless, the TPI mosquito-avoidant patches were designed and produced based on solid science and employing an effective and well-documented route of administration.

It would be remiss not to mention other prevalent and sometimes deadly vector-borne diseases, specifically dengue fever (and consequent hemorrhagic fever), lymphatic filariasis and river blindness. In all of these cases, the disease is transmitted by arthropod vectors that utilize the same (olfactory-driven) target-seeking mechanism that the patches were designed to thwart.

As a result, please consider that there can be a “better mousetrap” to add to the mix in battling the world's deadliest killer and the other dreaded vector-borne diseases.

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<sup>1</sup>Host resistance is a recognized phenomenon although the reason(s) underlying this may not be well understood.

<sup>2</sup>Children who harbor gametocytes (the stage transmissible to mosquitoes) of the parasite *Plasmodium falciparum* attract about twice as many mosquitoes as children who do not harbor these gametocytes. Lacroix R, Mukabana WR, Gouagna LC, Koella JC (2005) *Malaria Infection Increases Attractiveness of Humans to Mosquitoes*. PLoS Biol 3(9): e298.

\* see “The Search for An Ideal Mosquito Avoidant.”