



Small Bite, Big Threat: The Burden of Vector-borne Diseases

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Dear Editor-in-Chief

"Vector-borne disease" is the term commonly used to describe an illness caused by an infectious microbe which is transmitted to people by blood-sucking arthropods and more than half of the global populations are at risk of these infections (1). The disease accounts for 17% of estimated global burden of all infectious diseases. (2).

According to the recent estimates, malaria kills more than 600 000 people every year, most of them children under 5 years of age. Transmission of malaria is seen in 97 countries globally and 3.4 billion people are at risk of this disease. Malaria is caused by Plasmodium parasites and transmitted by the bites of Anopheles mosquitoes. Most number of cases and deaths occur in sub-Saharan Africa. Young children, non-immune pregnant women, travelers from non-endemic areas and people living with HIV are at risk of this infection. Early treatment reduces the number of deaths as well as contributes to reduction in transmission of disease, but resistance to the drugs is becoming a widespread problem (3).

During the last 50 years, the incidence of dengue has increased 30 fold times and the disease has started spreading from urban to rural settings. According to World Health Organization (WHO) 50-100 million dengue cases occur every year worldwide. Dengue is a arboviral disease spread by Aedes aegypti and Aedes albopictus mosquitoes. More than 0.5 million require hospitalization

due to dengue every year, most of whom are children. Severe dengue is characterized by plasma leakage, severe bleeding and multi organ failure. As of now there is no specific treatment for dengue and fluid management remains the main stay in treatment (4).

Yellow fever is an acute viral haemorrhagic disease transmitted by Aedes mosquitoes, which is seen in Tropical areas of Africa and Latin America. The disease occurs in two phases and it has a high mortality rate. The treatment is only supportive to treat the dehydration, respiratory failure and fever. Japanese encephalitis causes more than 10,000 deaths per year, mostly in Asia. Safe and effective vaccines are available against yellow fever and Japanese encephalitis. Chikungunya is a relatively uncommon and poorly documented disease, which is spread by Aedes mosquitoes and characterized by fever, rashes and severe joint pains (5).

Around 120 million people in South East Asia and Africa are infected with lymphatic Filariasis of which more than 40 million are incapacitated by the disease. Leishmaniasis is a disease which is spread by infected phlebotomine sandflies and 30,000 people are dying every year from the disease. The other vector borne diseases include Crimean-Congo haemorrhagic fever which is a tick borne viral disease, Chagas disease which is caused by Trypanosoma cruzi and transmitted by

triatomine bugs, Lyme disease spread by Ixodes ticks and Schistosomiasis caused by trematodes (2).

Globalization of travel and trade, unplanned urbanization and environmental challenges like climate change are having a significant impact on disease transmission in recent years. Poorly designed irrigation and water systems, inadequate housing, poor waste disposal and water storage, deforestation and loss of biodiversity, all may be contributing factors to the most common vector-borne diseases including malaria and dengue. Integrated Vector Management (IVM) is an approach that reinforces linkages between health and environment, optimizing benefits to both. IVM includes environmental management, biological control (e.g. larvivorous fish), chemical control and personal protection strategies like insecticide treated nets. IVM strategies are designed to achieve the greatest disease control benefit in the most cost-effective manner, while minimizing negative impacts on ecosystems (6).

Behaviour change is one of the key elements in the control of vector borne diseases. WHO emphasizes the importance of providing education and improving awareness, so that people should know how to protect themselves and their communities from these disease causing vectors. To raise the awareness regarding the disease, WHO has taken vector borne diseases as the issue for World Health Day 2014 and the theme for this year is "Small bite, big threat" (7). To conclude, in order to control the vector borne diseases which

have started to spread beyond their original boundaries, a strong commitment is needed from the community, national and international levels.

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