Partnerships for Dengue Control

Dengue prevention and control is an epitome of community-based programme through partnerships. The community in this context comprises of households - individuals, families, service groups and shopkeepers. The prevention and control of DF/DHF needs the best mix of a centralized approach and community-based efforts. It comprises of recycling, source reduction, safe water jars, larvicide distribution, promotion of coils and aerosol as personal protection measures, improved caretaker participation, and creating a demand for quality services in the private and public sectors through partnerships. The three critical elements of dengue control are:

(1) broadening community involvement in *Aedes aegypti* source reduction;

(2) improved caretaker recognition of DF/DHF recognition and timely and appropriate treatment when dengue haemorrhagic fever/dengue shock syndrome (DHF/DSS) develops; and

(3) appropriate response when there is an epidemic of dengue.

The problems in dengue prevention and control partnerships relate to sustainability and scale. For the partnerships to succeed, it is important that there is a commonality of interest, collaboration based on comparative advantage of each partner, and ongoing communication for information exchange. At the international level, the partnerships should be at the global, regional and country levels, including intercountry and interregional collaboration. At country level, the centralized vertical structure of the public health programme has to be synchronized with basic health services and community-based initiatives.

The main dengue vector, *Aedes aegypti*, breeds in domestic and peri-domestic areas in water containers and waste. It has a short flight range of about 200 metres. Therefore, the main thrust of prevention should be on the control of vector breeding and the reduction of human-mosquito contact, especially when the risk of transmission is maximal. The success of dengue prevention efforts will depend on the involvement and participation of individuals, families and communities.

In urban areas, the control of dengue is primarily the responsibility of municipalities and local government. They should organize and coordinate control efforts to maximize the involvement and participation of individuals and families, communities, and various support groups, including women volunteers and self-help groups. At district level, coordination and provision of technical guidance and mobilization of staff from the health sector and other relevant sectors is necessary to support the efforts of municipalities and local self-

governments. At national level, policy and regulatory aspects of dengue control, a consensus on policy, commitment of resources, application of standards of quality and coordination of work within the health department and other concerned departments are crucial. This can be effectively done through partnerships with the private sector and NGOs.

The partnerships should be of mutual benefit. As the programme progresses, market forces can decide the mode of participation. There should be a task force for this purpose and the decisions should be need-based in order to make an impact. The success of DF/DHF prevention and control programme would depend on partnerships with the private sector for ensuring sustainability, coverage and equity.

The steps that should be considered are: (1) development of guidelines and protocols; (2) mapping of partners to prepare an inventory of capacity; (3) formation of a task force; (4) developing a marketing plan after appropriate consultations; (5) undertaking marketing research and developing a marketing strategy; (6) development of promotional materials and media mix in consultation with community through social and behavioural studies; (7) organizing multimedia campaigns; and (8) monitoring and evaluation of partnerships.

Some of the efforts in the past that are worthy of consideration and emulation are: (1) healthy cities – a corporate responsibility in Laos; (2) water jars cleanliness in Cambodia; (3) extensive use of private pharmacies in Vietnam; (4) partnership with the corporate sector to enhance the supplies of larvicides in Singapore; and (5) elimination of larvae every week by the community in Thailand.

Several partnerships are contributing to the prevention and control of DF/DHF. These are summarized here to stimulate other partners to become interested and involved in solving this serious re-emerging public health problem.

DengueNet is a WHO global surveillance system for DF/DHF. It is a web-based central data management system to collect and analyse standardized epidemiological and virological data in a timely manner. DengueNet provides epidemiological trends as soon as data is available. The strengthening of epidemiological and virological surveillance of DF/DHF, including the implementation of DengueNet for early detection, planning and response is one of the four WHO global prevention and control strategies. When fully operational, the DengueNet will facilitate the work of Global Outbreak Alert and Response Network (GOARN). The DengueNet was started in the Americas in 2002 and in South-East Asia and the Western Pacific in 2003.

The Special Programme for Research and Training in Tropical Diseases (TDR) of WHO has included dengue prevention and control research in its portfolio. The thrust areas identified by a scientific working group of TDR include research on diagnostics through evaluation of currently available diagnostic tests, development of dengue pathogenesis research portfolio, vaccine research in partnership with the

Initiative for Vaccine Research, implementation research on case management, development of effective community-based vector control strategy through multicentre studies, novel vector control methods and tools for entomological monitoring and evaluation, multi-centre studies on the dynamics of vector transmission, building the capacity for surveillance to support the work of DengueNet in South-East Asia and the Western Pacific regions of WHO as a platform for multicentre partnerships in research, and promoting basic socioeconomic and behavioural research.

The Novartis Institute of Tropical Diseases (NITD) was established in 2002 in Singapore in collaboration with the Singapore Economic Development Board in the modern Biopolis Research facility. The institute will focus on research on neglected diseases. It has dengue and drug-resistant TB in its current portfolio. The plans are to target development of two compounds for the treatment of dengue by 2008, and two attractive and novel compounds for treatment of patients by 2013. The institute intends to provide treatment without any profit to patients in the endemic countries. It is emerging as a role model for public-private partnership in South-East Asia.

Mahidol University, Bangkok, Thailand has carried out research on the development of dengue vaccine. It had developed partnership with Sanofi Pasteur Institute to produce a vaccine during the next five years. The currently developed vaccine has 80% efficacy for virus serotypes 1,2 and 4 and a 60% efficacy for subtype 3. The paediatric dengue vaccine initiative has been launched to develop vaccines for children in developing countries. It would develop field sites for the evaluation of vaccines, assessment of the disease burden and strengthening of disease surveillance.

Rotary International has contributed towards the eradication of polio worldwide with its involvement since 1985. Dengue control and prevention should be on its agenda as dengue is emerging as a serious global health problem with 2.5 billion people at risk. Rotary has its presence in 155 countries through 28 134 clubs. In the new millennium, Rotary International is focusing on water management, education and urban environment. Dengue control matches these Rotary priorities. Rotary International can provide resources and expertise on social marketing for disease prevention and control, create community ownership and partnership in disease prevention, help clean up the environment to control *Aedes aegypti* mosquitoes, help convince citizens to assume responsibility in shaping their own health destiny, promote entry in the prevention and control efforts through the education system, and provide matching grants to initiate and sustain preventive programmes. Rotary has started to provide help in Indonesia, the Philippines and Colombia. These partnerships should be expanded and sustained.

Partners and stakeholders at the international level are contributing to the prevention and control of dengue. Their efforts can become more meaningful through the formation of a partners' forum for sustainability and effective coordination of partners' support. At the

international level, partners and stakeholders comprising of WHO, UN agencies, multilateral and bilateral agencies, research institutions, NGOs and the private sectors can support national programmes through advocacy for mobilization of resources, accelerate research on vaccines, drugs and diagnostics, help prevent the breeding of *Aedes aegypti*, and support national programme implementation. The partners' forum should also undertake networking and regular information exchange.