Inform'ACTION n°34
Information for action / Information pour action
ISSN 1029-3396

Dengue vaccine is main topic of the 2011 meeting of the Asia-Pacific Dengue Prevention Board

The Asia-Pacific Dengue Prevention Board (APDPB) is comprised of independent specialists in public health, clinical medicine and laboratory science, all of whom have expertise in aspects of dengue prevention and control. APDPB identifies, recommends and promotes best contemporary practice and needed research in dengue prevention and control in the Asia-Pacific region. It identifies needs for capacity building and can develop programmes to meet these needs.

The theme of the 2011 meeting of APDPB was 'The Dynamic Progress in Dengue Research – An Update.' It aimed to advance discussions at the national level on the accelerated introduction of dengue vaccines when they become licensed, acknowledging the rapid advances in dengue vaccine development. The meeting was organised by the Dengue Vaccine Initiative (DVI – http://www.pdvi.org/).

Invitations were extended to representatives from the ministries of health of countries that may consider introducing vaccination programmes for dengue should a vaccine become available. Dr Rangi Fariu, Director Community Health Services in Cook Islands, was invited to attend to provide a Pacific perspective on dengue control.

The current situation in endemic countries

Dengue is considered the top priority among infectious diseases of public health concern in countries in Asia such as Sri Lanka because there are no effective strategies for reducing the morbidity and mortality it causes. Therefore, as the disease continues to expand, case numbers are expected to increase proportionately. As the Asian epidemic continues to expand, it is possible that dengue will pose an increased risk to Pacific Island countries and territories (PICTs) via their direct and indirect links to the Asian region. Dengue is not a single-country issue but rather a regional issue.

Vaccines

Sanofi Pasteur has committed approximately USD 500 million towards the development of its dengue vaccine, which utilises novel technology to produce chimeric vaccine antigens consisting of four components. The company is currently conducting Phase III clinical trials in four countries where it expects the vaccine to be implemented once it is commercially available. It is expected that the vaccine will be available in 2015 when commercial-scale manufacturing begins in a purpose-built facility. Global introduction is not expected until at least 2020 through the private market. It is unclear at this stage how the vaccine will be applied in endemic countries. It is possible that availability will be mainly through the private market (at high cost) initially, until the costs decrease through increased volume of sales and introduction of competing vaccines.

Four other companies (GSK [purified, inactivated virus], Biological E, Panacea and Vabiotech) have candidate vaccines in Phase I trials. Sanofi also has another candidate in early stage development. Another company, Butantan is also working solely in Brazil and has entered Phase III trials.

Concluding remarks from the APDPB meeting

- Dengue epidemics are predicted to continue in number and severity due to effects of urbanisation, climate change etc.

- Vaccination strategies are yet to be defined.
- A vaccine will not replace other control measures such as vector control; it will be used as part of integrated programmes.
- Future activities of DVI include the possibility of a global summit or regional consultations on dengue.

Implications for PICTs

The apparent persistent increase in the number and severity of outbreaks of dengue in countries in Asia and South America would suggest that the risk of dengue in the Pacific region will also increase due to international travel, especially in those countries with strong tourism and business links to these regions. This increased risk may result in an increase in the number of outbreaks of dengue in the region as new dengue subtypes are introduced more frequently. In addition, endemic patterns of spread may develop in urban areas of countries with high population number and density. However, it is difficult to predict the likely future pattern of dengue in the region because it has a complex epidemiology and international movement is only one factor to consider.

It is difficult to predict how a vaccine for dengue will be introduced in the Pacific region. The current plan is to introduce the vaccine in the four countries that are involved in the ongoing Phase III clinical trials, which were chosen based on their disease burden. Other countries may be able to access the vaccine through private providers but possibly at a high cost and with limited availability, which would restrict its use. If the vaccine is successful then it is anticipated (by the companies) that the market will expand and the cost will fall as production volumes increase and competing vaccines are released.

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